COMPUTERWORLD

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These two Ampex core memories are attached to a 360/50 at the Kaiser Foundation Research Institute.

2 Fast Ampex Memories Wedded to Kaiser 360/50

OAKLAND, Calif. – Two Ampex, large-core memories for the IBM 360 have passed their acceptance tests at the Kaiser Foundation Research Institute here. They have been linked to two 360/50 computers and are operating at a cycle time of 4.5 microseconds, instead of the 8 microseconds of the equivalent IBM unit.

It is believed that this is the first time that large-core memories have been successfully plugged into 360s, although Lockheed has announced its intention to provide an equivalent unit.

The Ampex memories are priced at the same level as the IBM units, but operate faster. The operating speed of 4.5 microseconds is based on the speed of the 360/50 units, and Ampex anticipates that oh the larger units of the 360 field, the model 65 and upwards, it should work at a speed of 2.7 microseconds, nearly three times faster than the IBM unit.

The Ampex RM memory, plug-to-plug compatible with all IBM systems capable of utilizing LCS, was selected by Kaiser for its combination of performance, capacity, and economy.

The Kaiser Foundation medical program, begun in 1964, uses computer processing to collect and organize data for a wide range of research and clinical applications.

The Ampex-expanded data store holds information ranging from heart-patient records to complete physical examination programs.

In a typical research use, the [illegible] stores radiological, cardi[illegible]al, and diagnostic data as [illegible] patient records and ana[illegible]e information to indicate [illegible] or patterns for further study.

In a clinical application, the system stores and processes such patient data as blood-pressure measurements, thus automating routine portions of the Kaiser multiphasic physical examination to provide more time for personal doctor-patient consultation.

The RM memory is based magnetics-system design to obtain the optimum combination of speed and reliability. RM memories are available in capacities up to two million bytes.

10 Short Courses to Be Offered At DPMA's Montreal Conference

MONTREAL – The Data Processing Management Association conference, opening here June 16, will offer two-day seminars rather than a series of uncorrelated papers. The idea is that working systems analysts and data processing managers will be able to get their teeth into a subject and return to their jobs with a good picture of the various problems, pitfalls, and possibilities.

Errors and Insurance

In all, ten seminars are available. Two involve the problems of handling errors and insuring that an EDP system is really working properly. This is an unusual subject for such a meeting, one that often receives less attention than it should.

James Campise will talk about auditing the quality of a system after it has been completed and will discuss how the system can be checked to find out if it has achieved its goals. In the same series, Dr. Thomas Varley will talk about error detection and correction and will discuss methods of designing error conditions. George Meissner will discuss the controls that are desirable for effective operation, computer logs, procedure manuals, and internal control review procedures.

Equipment Selection

A separate series of seminars will cover the computer management problem, including methods of EDP equipment selection. Edward O. Joslin, who recently authored one of the first books on this problem, will discuss a systematic information approach to computer-requirement studies and will cover the subject from the preparation of vendor bids to the presentation of final recommendations to top management.

Continued on Page 4

Programmatics President David Ferguson talks to Sonia Kuert, his fiancee and Programmatics marketing manager, during a recess. She testified that of 1,500 people who expressed interest in PI Sort, only five actually signed for it.

Programmatics Inc. Fails To Get IBM Sort Banned

NEW YORK – Programmatics failed to persuade Judge Edward C. McLean that it would be irreparably damaged if IBM were permitted to continue to distribute the 483 DOS Sort. As a result, the company failed to win a temporary injunction preventing further distribution.

After the four-day, show-cause hearing in Federal District Court, Judge McLean ruled against Programmatics' claim that IBM had maliciously intended to hurt the firm.

But the judge noted, in his oral opinion, that the questions before him were whether there was a reasonable probability that Programmatics would be successful at the trial and whether the firm would suffer irreparable injury if it did not get injunctive relief.

Tie-In Sales

The judge said he wasn't in a position to rule on the software-hardware tie-in argument. But he noted that the practices alleged could perhaps be a violation of the antitrust laws, because economic pressure makes it unlikely that a customer would pay Programmatics for a program it can get free from IBM.

Judge McLean also pointed out that no evidence was presented on how many more copies of the new sort were still to be delivered. He said it seemed a little late for the court to enjoin IBM from distributing something which already had been sent out in large numbers.

Compatibility Discussed

The judge commented that it might be possible for Programmatics to make its PI Sort compatible with the 483 Sort. Although David Ferguson, president of Programmatics, said he believed PI Sort was incompatible with the 483 Sort, the judge said that as far as he could see, Ferguson did not have enough information about the 483 Sort to be able to say with any certainty whether this was so.

Judge McLean denied IBM's contention that Programmatics, Inc. was not the real plaintiff, pointing out that although there were some merger agreements between the company and Applied Data Research, it was still possible for either side to withdraw, and that Programmatics still owned the trade secrets involved with PI Sort.

Continued on Page 12

UCC's Fasbac T/S System Is Now Up and Running

DALLAS – Fasbac, University Computing's new time-shared computing system for large-scale business and scientific applications on the Univac 1108, is up and running.

After several rumors regarding problems and after several minor delays, the package has been made available nationwide through Computer Utility Network, a UCC subsidiary. It is available from the service centers in Dallas, Los Angeles, and East Brunswick, N.J., and will support many types of terminals including the UCC Cope/45.

Broad Terminal Support

Several different grades of terminals will be supported by Fasbac, including the Honeywell 200, IBM 1130, or Univac 1004 for high-speed use., The more common Model 33 and 35 Teletypes or equivalent equipment represent the low-speed end of supported devices.

In talking to several users of the system, all of whom expressed satisfaction with its work and cost levels, *Computerworld* uncovered no evidence to substantiate the rumors of unreliability or unworkability that have been circulating throughout the industry for several months.

On the Inside

ACM Adopts 1970 Budget

Development Seminars to Continue on Limited Basis

CHICAGO – ACM professional development activities will continue on a limited basis, Afips may become the conference manager for the ACM shows, and a budget finally was adopted at a special ACM Council meeting June 3.

At Last, a Budget

A 1970 budget, with about a $150,000 surplus, was adopted unanimously by the council after lengthy discussion and clarification.

The budget incorporates a 25% advertising-rate increase for the *Communications of the ACM* effective in January, but provides for few other changes in ACM publications.

Professional development is allocated $141,000 but is authorized to spend only $23,000, and has been instructed to report back to the council at the August meeting on the financial status of the operation.

A major membership drive was instituted, with a goal of 4,000 new members this year. This would bring the membership to 29,000.

All miscellaneous expenses came under close scrutiny and were cut to the lowest figures that would allow operations to be continued. Travel and operating expenses will be closely watched.

The projected distribution of surplus from Afips will be only $23,000 this year, as opposed to $40,000 last year, though this figure was felt to be low, considering the success of the Spring Joint Computer Conference in Boston.

Personnel were reshuffled again, resulting in a net gain of two and one-half people over the current staff. (Some ACM personnel work part time for the ACM and for Share.) These new people will be engaged in handling the bookkeeping and accounting under the new accrual accounting system to be started this year.

The budget breakdown includes: publications, a $134,000 deficit; membership, a $502,000 surplus; conferences, a $30,000 surplus; chapters, a $59,000 deficit; council and committee activities, a $34,000 deficit; special-interest groups, a $6,000 deficit; special-interest committees, a $24,000 deficit; and general (management, accounting, etc.) a $124,000 deficit.

The projected $151,000 surplus must be slightly adjusted to incorporate changes made at the council meeting. Final figures are not yet available.

Total income is estimated at $1,525,000 and total expenses are projected at $1,374,000.

Afips to Manage ACM Show

Contract negotiations have been under way for some time between the ACM and Afips to make Afips the manager of all ACM shows. The basic terms involved, it was revealed at the meeting, are that all policy changes must be made 18 months prior to a show. Afips is trying to discourage the ACM from raising its exhibit space fee from $5 to $6 per square foot for the 1970 show, although comparable shows receive between $8 and $11 per square foot.

Sam Matsa, 1970 ACM show chairman, expressed concern that Afips might be trying to exercise control over the ACM's policy matters, but Walter Carlson, ACM vice-president, pointed out that the negotiations had extended over a longer period than anticipated, thus passing the 18-month deadline for the 1970 show.

Carlson explained that, "We have worked over the contract to make absolutely certain that we retain all our prerogatives. The original contract was in drastic need of redrawing, and our lawyers have been involved for some time in 'cleaning it up' before signing. The final stages of preparing the contract are now under way."

The council expressed the hope that Afips, which has managed to operate several successful shows, will be able to provide larger profits for the ACM. The first test may be the 1970 show in New York.

IRS Revises 1040 To Aid Humans, Not DP Machines

WASHINGTON, D.C. – The Internal Revenue Service is planning revisions in Form 1040 (the basic document for reporting individual income) and in the various documents that support it.

The idea is to make the information easier for IRS people (beginning at the keyboard-input level) to handle. One basic change is that all forms now will be one-sided.

This may give the taxpayer a little more writing to do, but it may also make the 1040 (due to replace the 1040A and serve as the only standard) more easily understood, an IRS spokesman said.

The change is not, as some noncomputer publications have surmised, to make the documents more suitable for automatic scanning. An IRS staff member told *Computerworld* that scanning was not being considered for use in the near term as a direct-input medium.

The IRS is currently in the late stages of testing a key-to-tape system developed specifically for the service by GE. IRS is reported to be well pleased with the progress of those efforts.

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Tours Will Highlight the Ladies Program

MONTREAL – Ladies attending the DPMA 1969 conference will be offered a program designed to make their visit here enjoyable and memorable.

Included are trips to landmarks of historic interest, as well as a tour through the Laurentian Mountains.

The weather is usually warm and mild, so attire should include clothing comfortable for touring.

Registration will be held Monday, June 16, from 9 a.m until 4:30 p.m. in the hospitality room at the Queen Elizabeth Hotel, where coffee and pastries will be served and films of Canada may be viewed.

A continental breakfast will be served at the Queen Elizabeth Hotel from 8-9 each morning of the conference.

Tuesday, June 17, at 9:30 a.m.: Buses will leave the hotel for Chantacler Lodge in St. Adele, the Laurentian Mountains. There the ladies will be given a tour of the grounds, lunch, and a fur fashion show. Buses depart St. Adele at 3 p.m. for return to the St. Elizabeth Hotel.

Wednesday, June 18, at 9:30 a.m.: Tour of Montreal with visits to 36 well-known and historic sites. Noon: Lunch at Ville D'Anjou and a visit to the shopping center.

At the same time, Tour B will be conducted with lunch being served at the Fontainbleu followed by a tour through the botanical gardens.

Thursday, June 19, at 9:30 a.m.: Ladies may choose from among different seminars. Noon: Luncheon at Le Chateau Champlain. 6 p.m.: Conference banquet/ball at 9 p.m. by the entertainment program.

Conference Registration For DPMA Begins Sunday

MONTREAL – Registration for the DPMA conference will be held beginning Sunday, June 15, at the Queen Elizabeth Hotel. (Site #1 on the map.)

Fees for the full program are $90 for DPMA members and $105 for nonmembers. The seminar package is $75 with individual seminars listed at $30. The ladies' program is $45; each luncheon is $6, and the banquet and entertainment fee is $17.

The full program registration includes the conference registration, one industry tour, full seminar program, three luncheons, the banquet and entertainment program, and a bound copy of the conference proceedings.

The ladies' program registration includes the complete range of activities detailed in the ladies' program, plus the conference banquet and entertainment program.

Data Processing Installations Will Be Viewed

MONTREAL – Several tours to data processing installations and points of interest in and around Montreal have been scheduled for the DPMA conference.

All tours will be held Monday, June 16.

Participants will have an opportunity to view some of North America's most interesting computer facilities, a DPMA spokesman said.

Tour selections are Chemcell Limited, manufacturer of chemicals; Reservations World, the computerized reservations system of Diners Club; Molson's Brewery Ltd.; Montreal and Canadian Stock Exchange; Eastern Air Lines; and Air Canada.

Registration will be handled on a first-come, first-served basis.

DPMA Exposition To Be Four Days

MONTREAL – The 1969 DPMA Business Exposition, to be held in Place Bonaventure, will be open Monday, June 16, from 1 p.m. to 7 p.m.; Tuesday, June 17, and Wednesday, June 18, from 10 a.m. until 6 p.m.; and Thursday, June 19, from 10 a.m. until 3 p.m.

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BPA Membership Applied For

10 Short Courses to Be Offered at Conference

Continued from Page 1

On June 19, a number of separate seminars are planned. These will include ones dealing with an appraisal of data processing schools, the problems of "risk protection" at universities and other installations (perhaps motivated by the destruction of the computer room at Sir George Williams University in Montreal), and the social implications of computers. The last will be chaired by Alan Taylor, editor of *Computerworld*.

In the exhibition area, at least one unusual prize will be offered – a free trip to Europe. The exhibitor, Electronic Computer Programming Institute (ECPI), told CW that the first person to answer correctly a few questions, similar to the ones which students have to pass before graduating from the ECPI schools, would get the prize. If the winner is married, he will be able to take his spouse along.

Conference Courses Listed

The DPMA conference program will be divided into 10 "courses" of three sessions each. Each series will begin Tuesday afternoon and conclude with two sessions on Wednesday.

Thursday morning, 11 general-interest seminars will be held concurrently.

The 10 "short courses" are:

1. Trends in Systems Analysis Techniques
2. Control Consideration in Systems Operation
3. Computer Management
4. Real-Time
5. Software
6. Project Management
7. Installation Management
8. Personnel Management
9. Information: Management, Storage, Input, and Retrieval
10. New Programming Applications

Entertainment Will Spark DPMA

MONTREAL – The DPMA conference entertainment program, highlight of the traditional banquet, will be held in Place Des Arts, Thursday, June 19.

Nat Raider and his Orchestra, Canadian recording artists, will open the program with a medley of international music to set the pace for the show.

Performers will be Don Rice, comedian; The Five Bells, a young singing group from Montreal; and The Little Singers of Granby, a Canadian choral group.

Fires Simulated by Standards Bureau In Search for Fire Control Information

WASHINGTON, D.C. – An important part of fire-protection engineering is predicting the probable course of a building fire from ignition until it is extinguished. Accurate predictions would lead to valuable data for a better understanding of the physics of a fire and improved fire-suppression activity.

A recent study at the National Bureau of Standards Institute for Applied Technology explored the feasibility of simulating a building fire using a computer. This work, by J.A. Rockett, an NBS research associate sponsored by the Factory Mutual Engineering Corp., has also indicated areas in which further fire research is needed.

In the NBS simulation, a building is divided into cubicles (a single-family house would consist of about 44 cubicles). Data on the amount and type of combustible material at a particular location and the effects of a fire at one location on all other locations accessible to it are included. Air movements are calculated and the geometric features affecting air movements are compiled. Sprinkler system details are included if appropriate to the particular building under study.

A fire is described as being in one of a number of states, such as out, no fuel available; out, but fuel available; ignited, too small to ignite an adjacent cubicle; and established fire, able to cause adjacent ignitions; etc.

The NBS computer program that followed the course of a fire for a particular building of 437 cubicles contained 2,078 words of program instruction. In this case, 48 seconds on the computer followed the fire in one-minute steps for seven minutes as it spread through 17 cubicles and opened four sprinkler heads. The very rapid spread of fire in this particular example is accounted for by the office building chosen and the very high combustibility assumed for its contents.

The calculation included "assembling" the building from basic data and installing the sprinkler system from standard design rules. The method can be adapted for a wide range of situations by modifying the basic program. One of the more troublesome parts of the analysis is the representation of air movements in the building. A calculation of the air movement involves the two problems of input data and computing time. Although the geometry of the building is easily managed, it is altered by the doors and windows positions (open or closed) generally not known. This obviously affects the movement of air and, in turn, the course of the fire.

At this time, it is not possible to make precise predictions of building fires from an analysis of the building-fire system. However, the feasibility of such predictions appears quite promising. As more data on fire loads and air movements becomes available, better simulations will be possible. This should result in extremely valuable data for applications in fire-protection engineering.

'Tilt' Handles New Lending Law And Increases Loan Flexibility

PEARL RIVER, N.Y. — "Banks will not only be able to comply with the new Regulation Z of the truth in lending laws scheduled to go into effect July 1, but they will also have much more flexibility in calculating loan terms and payments," according to Jack Tauber, vice-president of Decision Analytics, developer of a new package called Tilt.

Tilt is written in Fortran and can be run on almost any of the available time-sharing services. It will be offered by Tymshare over its service and billed according to use. The package can be purchased for $5,500 or rented for a minimum service charge of $100 per month and $650 for installation.

Actually Simplified Loans

"The programs actually reduce the need for specific amounts or specific numbers of payments when negotiating loans," Tauber told *Computerworld*. "This will completely eliminate the problems brought about by the need for rate tables and the rigidity they produce," he said.

The package can provide banks, finance companies, and other lending institutions with complete flexibility in calculating the payments or terms based on any desired interest rate, any time period, and any prime amount.

For example, if a specific loan applicant requests $26,000 for a mortgage and can afford to repay $285 per month, the bank would enter this data and the desired return rate. The programs would print a complete repayment schedule, the total finance charges, and the number of payments.

With the use of tables, if you needed $23,385.49, you would probably receive $23,500. Thus the customer is forced to borrow the most convenient amount, rather than the precise amount needed. This practice could be eliminated and still allow the bank to maintain whatever level of return on investment it desired.

The package has already been sold to one bank, and Tauber told CW that other banks are interested.

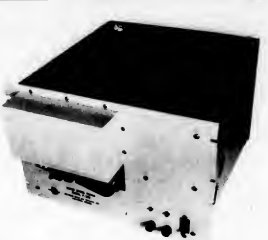
He emphasized that no programming knowledge is required, since the programs operate in a conversational mode. The computer asks specific questions, and the loan officer simply supplies the data.

Numbers Racket Used Data Cards

BALTIMORE — A large, very profitable numbers operation was recently flushed out of the sprawling national headquarters of the Social Security Administration. The arrests led to headlines such as "Computer Gaming."

But Baltimore County Police Chief Ensor told CW that the only data processing involved was the use of good old 80-column cards in the passing of wagers. No hardware was used.

Another source, close to SSA data processing officials, said that the service adamantly denied the involvement of more than a machine operator. The operator was said not to have used his machine, or any other, in the furtherance of his lucrative hobby.



P-300 high-speed tape punch

Tape Punch Comes in 2 Speeds, 310 and 240 Characters/Second

ALEXANDRIA, Va. — A paper-tape punch said to operate at 310 char/sec is being produced by Advanced Space Age Products, Inc.

The P-300 is based on the DRPE punch from the Teletype Corp., and is made under license from Teletype. It costs $3,500 in single quantity and has, as options, a verifier unit and a Dataphone interface.

There is also a 240 char/sec model. This, the P-340, runs at the same top speed as the Teletype unit. It sells for $3,000, compared to $2,379 for the rack-mounted DRPE.

Delivery of the two new units is stated at 60 days after receipt of order.

The company is located at 4308 Wheeler Ave., Alexandria, Va. 22304.

Photo-Optical Memory Offers Large Scale Storage

NATICK, Mass. – A photo-optical memory device, claimed to store large quantities of static information at very low cost, has been introduced by FotoMem, Inc.

The FM-390 series in capacity is a photo-optical cousin of the various large-storage devices, such as IBM's Data Cell, RCA's Race, and NCR's Cram.

It consists of a series of cells, each containing 100 cards and having a capacity of 10 million to 30 million bits. Up to 250 cells may be on-line.

The devices are said to be compatible with virtually all computers.

The FM 390 has an average access time of 40 msec to information on a card already in place, a very competitive figure. Loading a different card in the same cell is said to take between a half-second and a second.

Bringing in a new cell may take between two and four seconds. Data is transferred at rates up to 100,000 bytes/sec, dependably on the processor being interfaced.

FotoMem, Inc., 2 Mercer Road, Natick, Mass. 01760.

Card Reader Terminal

Western Telematic Inc. has announced remote, punched-card reader terminals specifically designed to interface with Call

360/Basic time-sharing service.

WTI Models CT41 and CT33 provide both on-line and off-line compatibility with either the IBM 2741 or teleprinters connected to the Service Bureau Corporation's computers supplying 360/Basic or Datatext, the company says.

The CT41 connects directly to an unmodified IBM 2741. In the on-line mode, either multiple or single cards are read incrementally with transmission at the standard 15 char/sec rate to the computer. Operator-selected functions combined with control codes from the computer permit up to 500 program or data cards to be read and processed in unattended operation without interference to the normal conversational Basic mode. As an off-line terminal, the system can be used as a card lister for reference or preliminary debug purposes.

The CT33 is the teleprinter counterpart to the CT41 and performs the same functions with teleprinters 33 and 35. In addition, the CT33 can be used as a card-to-tape converter with the ASR versions of the teleprinters, according to a company release.

All control and power circuitry are housed in a caster-mounted steel console with card storage space behind a front door panel.

The interface circuitry is compatible with 103A2 datasets and teleprinters with external DC keying loops or RS232B adapters.

Delivery of either unit is quoted at 60-90 days with service available nationally. The purchase price for a CT41 or a CT33 is $4,508. Either unit is also available on a lease plan.

For further information contact Western Telematic Inc., 5507 Peck Road, Arcadia, Calif. 91006.

Head-Dirt Monitor

New, at least to us, is a series of devices which, by monitoring the pollution of the air surrounding disk and drum storage devices, warns in advance of possible head crashes, excess wear of moving parts, or leaks in air filtration systems.

Benefits are offered to both the user and the manufacturer. The maker of the devices, Royco Instruments, Inc., looks for improvements all along the line, in design, manufacture, and use.

While it might seem to the user that he gets sufficient protection from brushes built onto the read/write heads, anyone who has ever had a crash in the middle of a multivolume update (using any access method) may be interested.

The company points to the possible benefits that may be realized if the same volume is allowed to be the possible contaminant of more than one drive.

The devices are said to monitor particle count, either on a periodic basis or continuously. The company says that "some evidence indicates that the residual debris from inadequate or careless cleaning procedures may be a frequent cause of subsequent head crashes."

There doesn't appear to be a method of identifying the particles, or, therefore, of pinpointing the source, be it metal wear or air dust, etc.

Royco Instruments, Inc., 141 Jefferson Drive, Menlo Park, Calif. 94025.

Controlled Switching

A new family of computer-controlled communications switching products has been announced by Astrodata, Inc.

The initial Astrodata system was designed and built for RCA Global Communications in New York.

Various types of services which require switching are available within the communications industry: voice, data, Telex, etc. The advent of the computer-controlled multipurpose exchange enables a switching center to handle voice (telephone), Telex (teleprinters), high-speed data (computer communications), broad-band (facsimile), message store and forward (telegrams), all through one computer-controlled switching center, the company says.

These capabilities, coupled with automatic accounting, alternate routing, special classes of service, and other features available through the use of computers, are said to represent significant economic advantages to the user.

More information is available from Astrodata, Inc., P.O. Box 3003, 240 E. Palais Road, Anaheim, Calif. 92803.

Ribbon Inking

A new technique of inking ribbons for computer-printing applications has been developed

New Products

and tested by Westates Space-Era Products, Inc.

The process, known as Wespac Rib-N-Font, incorporates the addition of a universal type of ink formulated under the name of Rib-N-Hue. Tests conducted by the company indicated, they claim, that the service offers significant improvement to the inking and print quality of computer-printing ribbons.

Steele Westates Service, 617 S. Harbor Blvd., Anaheim, Calif. 92805.

9-Track Recorder

A nine-track, IBM-compatible, magnetic tape data recorder has

been announced by Vanguard Data Systems, Inc.

Designated the KB-800 Datascribe, the new unit is a member of a family of Vanguard devices that enable an operator to enter data directly onto magnetic tape.

Data entry on the KB-800 is reportedly 30% faster than on a keypunch, with computer throughput time speeded up by at least 250%, according to the company. Also, according to a Vanguard spokesman, the KB-800's advanced IC electronic and tape transport design make it far more reliable than a keypunch.

The KB-800, designed specifically for compatibility with IBM 360 systems, features a 64-character movable keyboard with 16 special keys for control of EBCDIC or ASCII codes: a directing, English-language display; keyboard interlocks; audio-visual error annunciation; and noise-abating tambour doors that cover the tape de-

The KB-800 incorporates a tape transport that provides automatic tape positioning and recording, verifying, and searching at speeds up to 32 ips. A high-speed rewind is also featured. Standard tape permits recording in gapped format at a packing density of 800 bpi. Tape security checks include longitudinal, lateral, and bit-by-bit comparison with memory.

Options available with the KB-800 include record counter; additional 64-character keyboard codes compatible with IBM, Burroughs, RCA, Honeywell, GE, and Univac; record size expandable to 200 positions either fixed or variable; reusable program storage capability; programmable left zero; packing densities of 556 bpi in 9-track tape format; and cyclic redundancy check character.

Complete specifications are available from Vanguard Data Systems, 1642 Kaiser St., P.O. Box 1820, Irvine, Calif. 92664.

Front-End Processor

A computer communications front-end processor, said to be capable of handling as many as 256 data communications lines simultaneously, and compatible with any commercial time-sharing computer, has been introduced by Communications Logic, Inc. It is now in service on SDS 940 and PDP-10 computers.

Designed to work with both leased data circuits and dial-up networks, the unit is said to accommodate all line speeds up to 9600 baud, and to permit simultaneous service in a mix of baud rates and varying message formats. It interfaces to a computer either by direct access on an interrupt basis, or by use of a general-purpose processor on a message or data block basis.

The equipment, designated CCI, operates in a stand-alone mode, handles all control signals from the data set, establishes connection with the terminal, and makes disconnection with the terminal.

It communicates with the computer only when there is a need for an active transfer of data into or out of the computer or when changes in communications requirements develop.

The CCI has three functional segments: a 32-line group controller (or controllers); a scanner and computer interface; and a control and display console.

The unit can be implemented with as many as eight 32-line group controllers, each controller equipped for either single or dual access. Single access allows up to 256 data circuits to be controlled by one scanner (computer).

Dual access enables up to 256 data circuits to be controlled by either of two different scanners (computers), thereby providing a fine-sharing system with the capability to switch customers to a backup computer in case of a "crash" by the prime computer.

Communications Logic, Inc., 6400 Westpark, Suite 355, Houston, Texas 77027.

Bank Terminal

A computer terminal system for banks has been announced by a Swedish company, Arenco Electronics AB, Stockholm, a division of Svenska AB Philips.

The Arenco terminal is itself a small computer with data storage and computational capability. Because of its capability to accept software, the terminal is said to be adaptable to specific computer system needs.

Application for other kinds of cash-handling stations is anticipated, such as check-out counters, money-order machines, and ticket offices.

In 1971, Svenska Handelsbanken, with more than 550 branches and more than 1,100 tellers' windows throughout Sweden, will gather all transaction data into a central computer directly from tellers' positions equipped with the Arenco terminals.

To provide the teller with verification that entered transactions are correctly recorded, a signal panel displays the data entered at the keyboard and the readout obtained when the terminal's computational functions are used.

For example, the result of a calculation of a new deposit balance would be shown.

The modular design of the hardware is said to permit banks to choose the terminal equipment best suited to their needs.

In the on-line system, transaction data is recorded by direct data transmission. Back-up is available in the form of a tape that may later be read off in the data center. Thus, normal teller operations may continue unaffected in the event of a transmission line failure.

With Arenco terminals, normal teller routines as well as data recording functions are exactly the same in both the on-line and the off-line systems. For this reason, the two types of terminals can be combined in the same system.

Arenco Electronics AB, Stockholm, Sweden.

The Illustromat 1200, a modular, computer-directed system, converts orthographic (blueprint) plans into 3-D illustrations. It is priced from $18,750 to $29,325 from Perspective Systems, Inc., 4400 7th Ave. S., Seattle, Wash. 98108.

Editorials

'Maintained' Is Not 'Guaranteed'

One of the advantages resulting from the recent stringent look at software, forced on the industry by various court cases, is that we now can see more clearly what software is not. In particular, we can see what "maintained" software is not. And this turns out to be important.

Before, we tended to break software up into two areas: software that is maintained and software that is not maintained. Of the two, the DP manager has always been much more impressed by maintained software. He may have used some of the program exchanges that existed, such as Cosmic, Share, etc., but he was probably rather distressed by the results. Software seems to be constantly changing, and if it is not maintained, it appears to have little value.

This has become obvious over the years and has naturally made the manager favor maintained software. In turn, perhaps, this has hidden from him some of the problems involved.

"Maintained" software turns out to be just that and no more. It is software which, when it is found to be in error, is corrected after some period of time.

Unfortunately, these corrections do not include taking responsibility for errors that have *already* taken place. "Maintained" software is only maintained, not guaranteed.

In a sort, for instance, it may be that a record or two can be lost. It may be that some error checks which are supposed to work and on which the programmer has relied do not, in fact, work. It may be that a considerable time elapses between the original issue of the software and the discovery of the error, and that even more time elapses before the error is corrected.

True, the procedure will eventually put the error right – but it will not deal with the errors caused to the user during the period before the corrected version becomes available. It will not deal with the problems involved when a customer has been lost because we insisted we did not receive his payment, but in fact the sort had lost the record concerned. It may even have contributed to the anticomputer feeling caused by the inability of the ordinary user to discern that a fault was in the computer and not elsewhere.

Maintained software is maintained, but the computer company does not take responsibility. Perhaps that is why it's been "free" until now.

Effective Control Needed

Few groups successfully police themselves. For two thousand years doctors have tried, yet we find that their ethics do not cover the relationship between physicians and drug companies. Only through outside pressure has this association been exposed.

Thus, we are wasting our time talking about professional ethics or about engineering human values into our machines.

The only effective control will come from the outside – from government and an aroused public. The only hope for controlling the national data bank is an informed Congress, not the systems engineers designing the data bank.

So our need is twofold: an intelligent, charismatic spokesman or group of spokesmen, and a research organization to back them up.

Such a group must be independent, so that it can function without fear of offending a parent organization or company. And such a group must be formed now, and must begin action immediately.

Our work is cut out for us because our industry is filled with people who want only more efficient programs and don't care how they are used or whom they affect.

"But They're Not Even Talking to Each Other!"

Letters to the Editor

Solution Offered for Dull Conference Technical Papers

With regard to Peter L. Briggs' article, "SJCC Sessions Called 'Uninteresting, Poorly Presented'," I have a diagnosis and a suggested remedy.

The long lead time required by the publication of a proceedings tends to dull the interest of the author. I recommend that none of the papers included in the proceedings be presented by the author, but that two or three carefully selected individuals give 10-minute discussions of the papers followed by questions from the audience to the commentators and the author. No advance copy should be required of the commentators and they should not be given the papers too far in advance of the meeting.

John W. Hamblen, Director
Computer Sciences Project
Southern Regional Education Board
Atlanta

Peace Group Is Criticized For SJCC Demonstrations

Recent rude actions of certain individuals calling themselves collectively as "Computer Professionals for Peace," would indicate to me that they are not very peaceful, they care little about computers – and certainly lack professionalism.

Newell E. Usher
Chicago Heights, Ill.

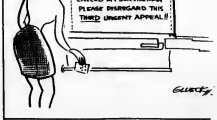
ACM Doesn't Even Know Who Owes It Money

Attached mailing [reprinted below] from ACM certainly points up one of the reasons ACM is in financial difficulty. They don't even know who owes them money.

Karl Thomas
HRB – Singer, Inc.
State College, Pa.

"The attached invoice requests payment of dues for the SIG(s) indicated. According to our records, you have not paid SIG dues since the time that we added SIG membership to our master computer file in October 1968. We are not able to establish if you paid dues between May and October of 1968. If you did not, then your SIG payment is due. If you paid on a date within that interval, then your next payment is due twelve months from that date.

"Since we cannot determine your previous payment date, your SIG membership will continue until October. If you owe a dues payment now or in the next five months, we would appreciate your sending it at the appropriate time. If we do not hear from you before October, you will be sent another invoice at that time."



"The Computer's Won the Office Pool Again."

Manufacturers Could Be Open to Suits

Clements: A Different Way of Looking at Proposals

The Clements case (also known as the SM Auto Supply Co. case) concluded with a $485,000 judgment against the Service Bureau Corp. for misrepresentation. It was not the first such case. IBM, in a somewhat similar case a year earlier, paid damages of about $50,000 after programs it had written for one of its users did not work properly.

However, the Clements case is more important because the decision was not made by a jury, as in the earlier case, but by a judge. A jury simply decides in the privacy of the jury room what damages to award, but publishes no reasons that can guide people in their later actions. By contrast, a judge, if he so wishes, may describe in detail his reasons for awarding damages.

And Judge Miles W. Lord did. He felt it appropriate to describe in no fewer than 52 pages exactly why he was awarding the damages.

This is the real importance of the Clements case: the judge's interpretation of the law. There is, in the computer field, a major gray area because the services rendered by the computer hardware manufacturer – services for which he is paid – are described very narrowly in the contract, but the salesmen, the proposals, and the advertisements describe these services in much broader terms.

Contracts, for instance, may cover such items as the model number of the machine concerned – but not the instruction timings published in the manual! These are regarded not as specifications, but as simply a description. The color is in the contract, but not the software – perhaps the major weapon in the salesman's arsenal with which to win contracts. The question in the Clements case was whether these areas outside the contract, but within the range of activity of the selling company (in this case, Service Bureau Corp.), were covered by the law.

The decision of Judge Lord was that these gray areas are covered by Minnesota law. He said that a businessman reading the additional descriptions might reasonably rely on them when making decisions, and that having done so, could hold the vendor liable if, in fact, the information on which the user had relied was false.

If this is so, then much of the material in our software manuals, in the computer proposals, and in the salesman's conversations with prospects (previously not regarded by the computer manufacturer as having more than moral force) has been interpreted by the law as having all the legal significance of the contract!

Usual Assets = One Year's Revenue

To try to estimate the importance of this fact, we have to take a look at the financial status of the computer company. The major computer manufacturer, IBM, currently has a net worth of just over $5 billion. This figure is so large that judgments, even of one-half-million dollars, would appear to be unimportant.

However, the company's net worth is only approximately the same as one year's revenue – also just over $6 billion. This amount could be wiped out if each average user were able to make a claim for damages equal to one year of his equipment rental.

This is typical of the industry. The net worth of the various manufacturers seems – and is – impressive. But viewed in terms of revenues, there is only about one year's equivalent. The question is, therefore, could the principles laid down in the Clements case affect anything like a year's revenue?

Under normal industry policy – that of taking no legal responsibility for the statements of the salesman or the proposals or representations in the advertising unless the material is also in the contract – the chances of the average user making any appreciable claims against the corporation are not great and could be ignored by management. However, if the Clements case sets a precedent, the chances of the average user being able to claim this amount of damages are multiplied and become a realistic, if still unlikely, possibility.

Software Problems Known

It has been known for some time now that computers have had severe software problems. Many pieces of software have been delivered late, and often the performance of the software has not met the expectations of the users. Disappointment has abounded. There are still many users who feel much safer with, say, IBM than they would with any other company, but this is not to say that they feel they have received from the company what they were sold by the salesman.

Dissatisfaction Could Cause Suit

This dissatisfaction previously had no legal significance. However, under the Clements decision, these users would be entitled to sue and to recover, if they had relied on the salesman's word.

Higher Recovery

Moreover, the recovery they could make would not be restricted, as is currently believed, to a straight return of machine rentals or a repurchase of the machine at full purchase price. Instead, it would involve not merely the user's hardware and court costs, but also all the other costs – those of running his computer center, of programming, of management and supervision, of inventory losses, of dissatisfied customers, etc. All these resultant costs, in a normal installation, would certainly be *three times the plain hardware cost – or more.*

Three-Month Average Recovery Could Do It

Applying this factor to the 12-month figure above, we find that if the average installation were able to recover three months' actual costs, the whole of the manufacturer's net assets would be required to pay the damages involved.

Two Serious Sidelights

There are also two sidelights which increase the possibility of substantial damages being recovered by users. Unlike the matter of knowing what the law actually is – still open to interpretation – these matters really are in the hands of manufacturers' policy makers. *Currently, they are being handled in a way which tends to increase the potential liability of the company in cases like Clements.* One of these is the information management system, and the other, ironically, is the general *esprit de corps* that pervades the computer industry and that hinders the corporation from admitting it is at fault.

Information Management

A typical information management system basically puts most of the announcements, and much of the technical material involved, beyond the user's grasp. Even such things as the company's price lists are, by company policy, kept confidential. The user is encouraged to wait until the salesman comes around and gives him details that the salesman thinks will be useful for the user to hear.

Makes Salesman Responsible

As a result of this policy, which restricts the user from access to available information, the company could hardly argue that the user should not have trusted the salesman. A user cannot orient his affairs in the light of information that exists and that his salesman knows, if he has not been made aware of it. In addition, the company does not even know whether the salesman has told the customer.

The *esprit de corps* point simply involves the statute of limitations. This was brought up in the Clements case, but the judge argued that Clements had a right to believe the SBC representations that it was the Clements operators, and not the SBC system, that was at fault. This relieved Clements from having to date its claim only up to the time it first had evidence that the system was not working.

Otherwise, the damages in this case would have been very minor and, in any case, probably would have been barred by the statute of limitations. However, the failure of SBC representatives to take the blame, which would have restricted the customer's rights, increased the damages very substantially.

Auto Safety Analogous

This is, in CW's view, the importance of the Clements case. We feel that in other fields, such as auto safety, and in other computer cases, such as one involving the Sperry Rand Corp. not so long ago, the trend is clear: More and more, the law is being extended to put the gray areas, which exist in many fields, into contracts. In fact, if the Clements case is upheld, the ramifications are, as IBM Chairman Thomas J. Watson Jr. said at the recent stockholders' meeting, serious.

Is Clements Important?

Recently CW has covered, in considerable detail, the Clements case in which IBM's wholly owned subsidiary, Service Bureau Corp., was ordered to pay $485,000 in damages. As well as the original news stories, we printed a news analysis that ran from page 10 through page 19 of the May 21 issue.

However, even in that analysis we merely described what the Clements case was about, where the failures occurred, and whose equipment was involved. We did not deal with the question of why the Clements case is important.

Obviously we feel that it is. But other people may feel that the Clements case is not important. Accordingly, we here summarize our reasons for believing that it may well be one of the most important cases in computer history.

Societies

Educational Uses of Computers To Be Featured at AMA Show

NEW YORK – Making education and training in schools and industry more relevant at all levels of society will be a principal concern of the American Management Association's 5th Education and Training Conference this summer, an AMA spokesman said.

The conference, held concurrently with the association's education and training exposition, will be held Aug. 11-16 here.

A highlight of the conference this year will be panels, discussion groups, and "how-to" sessions for the evaluation of scientific and technological tools for teaching and training.

Among the techniques and hardware to be considered at the conference will be data banks, software, computer technology in learning systems, and simulation and games.

Equipment to be demonstrated will include computers and computer programs.

Information about the conference may be obtained from the American Management Association, 135 W. 50th St., New York, N.Y. 10020.

End to Dull FJCC Tech Papers Promised

LOS ANGELES – The days of the dull, badly presented technical paper may be over – at least for this year's Fall Joint Computer Conference.

The FJCC Technical Program Committee, in an effort to receive not only more, but better papers, has solicited the help of prospective authors' public relations men. As each statement of intent to submit a paper was received, Dr. E.M. Grabbe, committee chairman, sent a letter to the public relations director at the author's company, giving him the name of the author and asking that he be reminded of the paper deadline and helped with the preparation of the manuscript if necessary, an FJCC spokesman said.

In the past, some potential authors have not submitted their papers in time to be considered. Either they were too busy to meet the deadline with a finished product or they just forgot about the deadline, he said. By writing to the author's public relations department or to the man's immediate superior, the committee is finding that the promised papers are in on time and that they tend to be more polished and interesting than the humdrum papers creeping into the sessions of so many technical conferences these days.

Five hundred technical reviewers will read and make recommendations on the more than 400 papers submitted. The conference will be held Nov. 18-20 in Las Vegas.

36 Sessions, 170 Papers Scheduled For Automatic Control Conference

NEW YORK – The 1969 Joint Automatic Control Conference, the tenth in the series, will be held Aug. 5-7 on the campus of the University of Colorado in Boulder, Colo. Twenty-four contributed and 12 invited sessions will feature papers on the latest developments in automatic control. A case-studies workshop and a computer-control workshop also will be held the day before the conference.

At 36 sessions, many of which are in more than one part, 170 papers will be presented.

Sponsored by seven professional societies, the meeting this year is being hosted by the American Institute of Chemical Engineers. Other participating societies include the American Institute of Aeronautics and Astronautics, the American Society of Mechanical Engineers, the Institute of Electrical and Electronics Engineers, the Fluid Power Society, Simulation Councils, Inc., and the Instrument Society of America.

The fee for the meeting is $35 for members of JACC-sponsoring societies, and $50 for nonmembers.

The program chairman of the 1969 conference is W. E. Schiesser of the department of chemical engineering, Lehigh University. The general chairman is Otis L. Updike of the department of chemical engineering, University of Virginia. R. Curtis Johnson, chairman of the department of chemical engineering, University of Colorado, is chairman of the local arrangements committee.

IEEE Nominates 1970 Candidates

NEW YORK – Dr. John V.N. Granger, chairman of the board of Granger Associates, Palo Alto, Calif., has been nominated for president of the Institute of Electrical and Electronics Engineers in 1970 by the IEEE Board of Directors.

Also nominated by the board was Dr. James H. Mulligan Jr., executive secretary of the National Academy of Engineering, Washington, D.C., for vice-president.

The ballot of all nominees will be issued to the institute membership late in August.


The computer selection team helped.
It was great for first screenings. Comparisons. Weighting the computing requirements for your particular job. Then more screenings. And then, the recommendations . . . but that can't make the decision for you.
Signing that half million dollar purchase order is your problem, and your problem alone. That signature commits your judgment, your reputation, your own knowledge of what you need now . . . and what you may need two, three years from now. No one commits that much without serious private thought. No committee helps here.
We understand how you must feel, and we respect it.
Somewhere in these evaluation reports, you may have seen a comment that the PDP-10 is the most versatile big computer on the list. That it will stay most useful, longest. We think you should consider that point longer and more seriously than any other. We did when we designed the PDP-10.
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COMPUTER CORPORATION
Digital Equipment Corporation
Maynard, Mass. (617) 897-5511

Adapso Asks Separate Pricing for Competitive Items

NEW YORK – The Association of Data Processing Service Organizations has called for separate pricing of "any service or function which is, or can be, available at the market price or provided by the user himself if he chooses." In particular, the group has asked for the separate pricing of systems-engineering support, educational programs, and application-oriented software or programming, but not for equipment maintenance and operating systems, compilers, etc.

Ahead of New IBM Policy

The call, which comes ahead of the anticipated IBM announcement on what parts of its services it will price separately, is believed to have been particularly addressed to that company in the hopes of influencing the final decisions.

Adapso has taken the position that the current use of "single" prices in the computer area represents a tie-in sale which, it said, is "no less odious than the full-line forcing of products which are separately priced." Adapso's argument is that because of the vast amounts of unwanted and unneeded products which, in practice, are tied in, "single" pricing is completely indefensible. Beneath this phrasing there appears to be a warning that if, in fact, it is found that products, although separately priced, have to be bought in a single package, the association would not consider this a satisfactory solution.

As well as the tie-in aspect, Adapso also feels that single pricing involves price discrimination, arguing that users obtain widely different amounts of service for the same price.

Operating Systems Excluded

The reason for excluding equipment maintenance and operating software from the recommendations is said to be that both functions are intimately connected with the equipment itself and require special expertise not likely to be available in most users' organizations. Also, Adapso noted, they are not currently available, to any significant degree, in the market place. The group also said that there is less evidence of discrimination in this area because the amount of service consumed is likely to be related to the amount of equipment in use, and thus, to the rental. However, Adapso warns that these circumstances could change and, if so, it would then feel that the desirability of separate pricing would apply.

Programmatics Fails to Get Injunction

(Continued from Page 1)

PI Sort was designed to operate in conjunction with the then-standard 450 DOS Sort. Programmatics claimed that it was better from a timing standpoint by at least two-to-one than the standard sort available free from IBM. Programmatics charges $200 a month or a $4,500 purchase price for the use of the sort at an installation.

483 Cost $850,000

During the hearing, Robert B. Wolfson, director of systems engineering programs at IBM corporate headquarters and a backer of the 483 DOS Sort, said that the new sort originally had been scheduled for announcement in February, 1968, but that during tests it was discoverd that performance on small core sizes was not what had been hoped. He said IBM delayed the announcement to study the problem and to see if it could be solved.

Eventually IBM decided it could not improve the performance in the small core sizes but decided to release the program in any case.

He said that originally one-half-million dollars was allocated to the production of 483, but that eventually the development cost approximately $850,000. He estimated the distribution cost for the full DOS programs on two tape reels at approximately $46.00. The 483 Sort represents approximately 5% of the 600,000 instructions in the current version of the DOS program.

Some of the other evidence showed the situation from Programmatics' point of view. Sonya Kuert, marketing manager of Programmatics, told the court that 1,500 people had asked for information about PI Sort after its public announcement last November, but that only five completed contracts

Computers read Keytape input up to 10 times faster.

Here it is. 1969. We have third generation computers that'll process 500,000 characters of data per second. Incredible.

And what do we feed these super speed computers?

Punched cards. Which the computer processes at the *first* generation rate of 800 characters per second.

Super-speed data preparation.

Isn't there something ridiculous about this? Isn't it about time data preparation made it into the third generation, too?

Well, it has.

Keyboard to magnetic tape.

The Honeywell Keytape system looks pretty much like a keypunch. Except that the data is recorded directly on magnetic tape cassettes that plug directly into the computer.

Keytape not only increases data preparation productivity by as much as 3 to 1. And it cuts input time by up to 10 times. Which lets the computer up to 10 times faster.

Plus.

You can [illegible] Keytape [illegible] cards. And [illegible] and verification.

The Keytape system [illegible] unit at a time [illegible] with keypunch speeds [illegible]

On top of [illegible]

The Other Computer Company: Honeywell

Colleges Share Remote Access System

ST. LOUIS – Students in Prof. Harvey Schmidt's introductory calculus course have a computer to help them at Forrissant Valley Community College.

In fact, so do about 1,200 of their classmates at all three community colleges in the St. Louis Junior College District, Meramec, Forest Park, and Florissant Valley.

Those enrolled in a variety of mathematics, engineering, science, and business courses on the three campuses use five terminals tied by telephone lines to an IBM computer in JCD headquarters here.

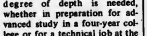
An IBM program called Remote Access Computing System (Rax) allows students to work at the five terminals on individual problems at virtually the same time. The System 360/40 flicks its attention from one terminal to another in fractions of a second.

Tom McClintock, JDC data processing director, said, "We use Rax 25 hours a week during class time so that instructors get the most out of a computer.

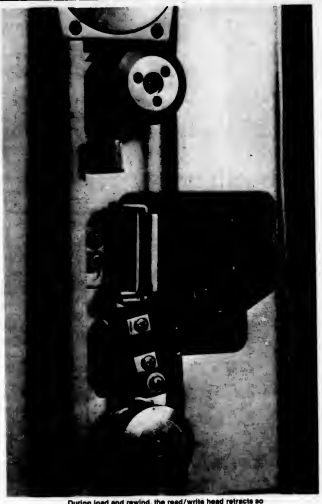
"We want students to use the computer in every subject involving numbers and calculations, whether in a simulated business situation or solving a complex engineering problem, he said.

"Our courses permit whatever degree of depth is needed, whether in preparation for advanced study in a four-year college or for a technical job at the end of two years," he said.

By next fall, new terminals on the campuses will permit more student jobs to be processed in less time, McClintock said.

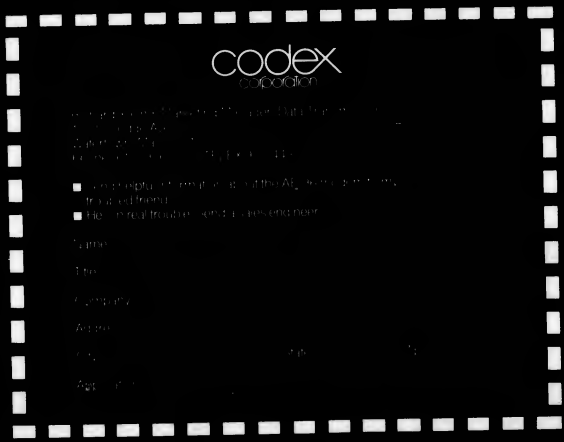


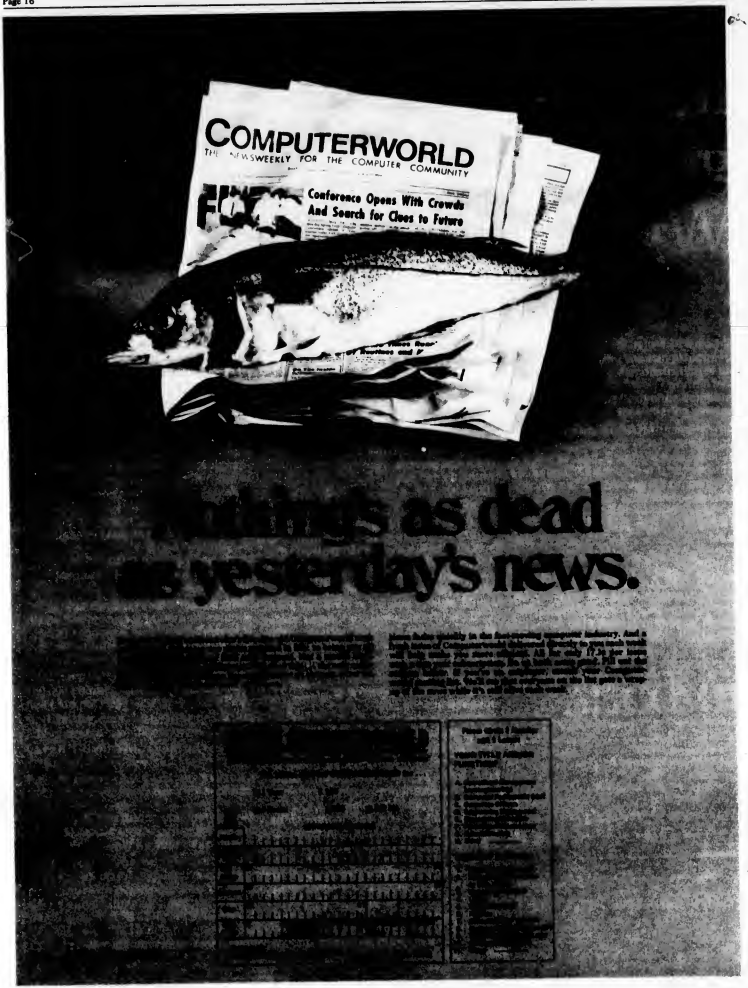
The read/write head on MAI tape drives touches the tape only during read and write operations.



During load and rewind, the read/write head retracts so nothing touches the recording surface.

Send help to a friend in trouble.




COMPUTERWORLD
THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY
Conference Opens With Crowds And Search for Clues to Future
nothings as dead as yesterday's news.

MIT Should Reduce Defense Research, Committee Says

CAMBRIDGE, Mass. – MIT should sharply reduce its defense research, most of which is computer-related, and shift toward research efforts "aimed at other urgent needs of society," a special MIT committee has advised.

MIT is the largest nonprofit defense contractor in the United States.

The committee declared, "There is a tragic imbalance between the money spent in the country (and specifically at MIT) on military programs as compared to money spent seeking solutions to internal problems," and stressed that the imbalance at MIT must be corrected.

The committee also urged that the "MIT community as a whole participate" in the selection of both defense and civilian projects, and they called for the establishment of a standing advisory committee of students, faculty, and staff. Currently, each laboratory selects its own research projects without consulting other groups at MIT.

Group Named After Protests

Following student and faculty protests, including a one-day research strike March 4, MIT President Howard W. Johnson appointed the committee on April 25. It had 22 members, including deans, professors, students, staff, and alumni. The recommendations are not binding and must be approved by the school's governing board, the MIT Corp. However, Johnson has endorsed the report, and approval by the corporation is expected.

MIT's research budget for the academic year 1967-68 was $173 million. Of this, 60% came from the Department of Defense, making MIT the 10th largest defense contractor and the largest nonprofit defense contractor. Of the remaining 40%, 35% came from other government agencies and only 5% from private sources.

Designed Apollo Computers

Nearly all of the defense research is conducted at two special laboratories. Instrumentation Laboratory, under the direction of Dr. C. Stark Draper, is the world center for design and development of inertial guidance systems. It was responsible for the guidance systems for the Apollo and the several generations of ballistic missiles. According to an MIT spokesman, all of the guidance systems developed by the lab use computers.

Lincoln Laboratory receives all of its funding from the Defense Department, and its main projects are in space communications, radar, and computer systems engineering. It developed the Distant Early Warning (Dew) system and Sage, a continental air defense against high-speed aircraft. Among its current projects is computer-graphics research for the Defense Department's Advance Research Projects Agency.

All of the members of the panel concurred on the report, but four "personal addenda" were also included. Prof. Noam Chomsky took particular issue with the panel's view that it should not take stands on political issues. Chomsky declared: "In an institution devoted to science and technology, we do not enjoy the luxury of refusing to take a stand on the essentially political question of how science and technology will be put to use." He also charged that to accept the definition of "national interest" as given by those in power was to make a political judgment to support "the existing structure of power and privilege."

Against Severing Ties

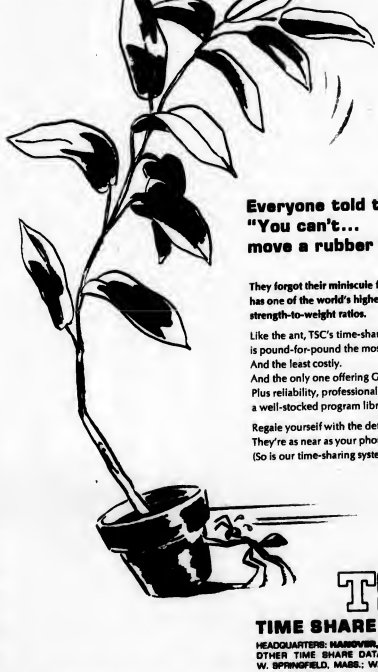
The panel specifically rejected the suggestion that MIT stop all defense research. It also rejected the suggestion that MIT do what Cornell and Stanford did, namely, sever all ties with its defense-related labs and allow the labs to function unchanged as independent, nonprofit corporations. The MIT panel felt that it would be better to try to redirect the defense laboratories.

Another way out, keeping the defense labs as is and starting new labs for civilian work, was also rejected by the panel. It noted that Instrumentation and Lincoln Laboratories already accounted for more than half of MIT's total budget, which is a large enough percentage of "nonacademic public service."

Having rejected the only two ways of keeping defense research at its current level, the panel proposed that "MIT's nonacademic public service be diversified by including a considerably larger nonmilitary component devoted to the major problems of society."

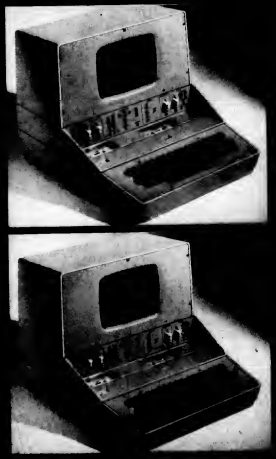
The panel also urged that less work at the two laboratories be classified, and particularly, that "classification of project descriptions must be severely limited or removed entirely, since this practice prevents the MIT community from even knowing the nature of some of MIT's activities."

Finally, the committee urged increased "educational interaction" between the laboratories and the campus and that the laboratories involve more students.



VIATRON doesn't promise service, we give you free standby units

That's better than promises. Standby units are something you can keep for us.



You've heard the one about the traveling serviceman?

Well, we don't think service problems are funny. That's why we're using the military concept of remove-and-replace depot maintenance rather than the more expensive traveling serviceman.

We give you two free standby units with every fifty you rent. (If you rent less than fifty units, backups are available at 75% of monthly rentals. Or, if you notify us, we'll ship replacements within four hours.)

This backup service saves you time. Saves us money. In fact, the elimination of repair-on-your-premises field service is one of the reasons we can rent System 21 computer stations for $39 a month.

The other reasons?

Mass production. VIATRON is tooling up to make and ship more units in a month than most of our competitors make in a year.

Mass media advertising. VIATRON is replacing knock-on-the-door salesmen to minimize marketing costs.

Add it up for yourself. Lower manufacturing costs. Lower marketing costs. Lower service costs. Now do you see how VIATRON is able to offer computer stations with a MOS/LSI microprocessor, two data recorders, typewriter/key punch keyboard, and a video display for $39 a month?

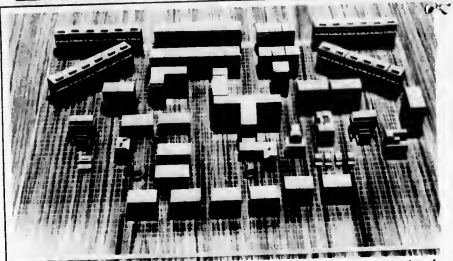
Deliveries are scheduled to start this year.

For more information write VIATRON Computer Systems Corporation, Dept. C-11, Route 62, Bedford, Massachusetts 01730. Or call (617) 275-6100.

VIATRON
SYSTEM 21

See System 21 at Island L, DPMA Show, Montreal, June 16-19.

VIATRON System 21 puts the logic where the problem is



Computer planning kits and individual models are used for the planning and replanning of a System 360.

360 Installation Can Be Replanned By Use of Kits

OAKMONT, Pa. – The planning and replanning of a System 360 computer installation can be done without a great deal of eraser work through the use of either of two recently announced kits.

Visual Industrial Products, Inc. is offering a 35-piece kit for $59 and a 65-piece one for $99. Both are specifically for 360 installations. The makeup of the kits was suggested by IBM, the company says.

The most-used peripheral (in terms of number per installation) is the tape drive. The smaller set has six tape drives; the larger, 12. Additional pieces are available at extra cost.

The kits are scaled 1/4 in. to the foot.

The supplier's mailing address is P.O. Box 113, Oakmont, Pa. 15139.

Basic Cofounder Named to Post

HANOVER, N.H. – Dr. John G. Kemeny, mathematician and codeveloper of Basic, has been named the first member of the faculty to hold a newly created Third Century Professorship at Dartmouth College.

The new professorship, embodying innovative concepts in education, is named in honor of Albert Bradley, a 1915 Dartmouth graduate and retired chairman of the board of the General Motors Corp., whose gift to the Dartmouth Third Century Fund made the academic chair possible.

The Albert Bradley Third Century Professorship provides for a nonrenewable 10-year tenure for the incumbent and carries released-time and support funds specifically for the development of new approaches to undergraduate teaching, rather than for topical research.

Kemeny, 43, was instrumental in developing the philosophical and educational concepts which led to the creation of the time-sharing computer system for education, introduced at Dartmouth in 1964.

Basic was developed at Dartmouth.

the second revolution in computer time sharing begins NOW

■ The AL/COM interactive time sharing network will electrify every sophisticated computer user in the United States.

AL/COM now gives you more interactive computing power with faster response time, than any other time-sharing system . . . 32,000 36-bit words per user. Cycle time one microsecond. Your access to this increased computer power is instantaneous and direct. Through your telephone. Privately. It's a "tough-job" system and it has the best price/performance ratio there is.

■ AL/COM has a policy about insoluble time sharing problems. We solve them.

We're after the tough jobs, the big ones. We're talking about price/performance ...good response time...and freedoms that time-sharing hasn't granted you before. Things like:

Core Capacity -- AL/COM gives you 160,000 characters (32,000 words) in active core per user.

On-Line Storage -- AL/COM has a billion characters of disc storage.

Large Files -- AL/COM gives you 1,250,000 characters per file.

Fast Access -- AL/COM can search a 2.5 million character bank in seconds.

■ The things you can do with AL/COM time sharing are limited only by your imagination.

AL/COM has the bugs worked out. We've been up for 3 years. We can connect you with teletypes, line printers, CRT's and multiplexers. We speak eight languages . . . BASIC, FORTRAN IV, COBOL, etc. We're adding others. AL/COM solves problems in science, engineering, and banking. It's for operations research, marketing and statistical analysis, and bridge building . . . for management, information, investments, and manufacturing. We even do little problems well.

■ When comparing time sharing services, you can't include AL/COM with the others.

AL/COM service stands out because we've interlaced a string of multi-processing AL-10 systems, with one computer backing up another in each system, and a second dual system backing up the first . . . and we'll soon have ten. They're all side by side, but as close as your local phone. Think about that...central files...back-up...speed ...reliability...distributed nationwide by the AL/COM Time-Sharing Network.

■ When you select AL/COM you get a nationwide network of computer software professionals.

We bring AL/COM to you through a nationwide network of professional software organizations. We're more than reps, dealers or branch offices. We're AL/COM Associates; local, independent firms, among the best in the industry. Systems and applications expertise is an integral part of the AL/COM network. This means you have the largest group of independent computer software experts to help your solve problems more efficiently, right at your elbow . . . through AL/COM. Two new "Associates" are selecting AL/COM each month. Why don't you?

■ In just 30 seconds, you can arrange for a demonstration of the world's best price/performance computer time sharing service.

Experiencing AL/COM is believing. We'll benchmark AL/COM against your present system. Compare the response, the speed, the cost. Do you have a problem you can't solve on your present system? Try us. We're after the tough ones.

■ It takes guts to start a revolution.

Revolutions are started by people dissatisfied with the way things are. Success depends on a change for the better. That's what AL/COM is all about ... and it's revolutionary.

Contact us for information or demonstration

AL/COM

The Revolutionary Time-Sharing Network

AL/COM is a service of
APPLIED LOGIC CORPORATION
One Palmer Square
Princeton, New Jersey 08540
(609) 924-7555

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Name Title

Company

Address

City State

Zip Tel.

Constrictions in the left graph represent errors in transmitted data.

Tape Recordings of Data Transmissions Help Engineers Spot Intermittent Errors

RALEIGH, N.C. – Tape recorders are being used to capture trouble conditions in encoded data transmitted by telephone. The recordings, which sound like a series of the tones heard when calling a number with a push-button phone, are used to produce graphs comparable to electrocardiograms.

In cooperation with telephone people, specialists at IBM scan the graphs to visually diagnose the source of errors and determine corrective action.

The technique is called Great (graphic recording error analysis technique). IBM's Field Engineering Division developed Great. It is used with the computer user's prior permission and with the cooperation and assistance of the local telephone company. A special connecting arrangement provided by the telephone company is used.

The technique results in more rapid correction of intermittent and obscure troubles in teleprocessing systems.

Intermittent troubles are particularly critical, as they are difficult to catch and correct because of their irregular, and hence unpredictable, occurrence.

By recording the data transmission process on tapes, intermittent errors that might involve repeated transmissions are preserved for continued study as well as graphic review.

The obscure troubles caught by using the new method include those resulting from faulty programming in the transmitting computer, as well as errors developing in the transmission and receiving processes.

When data transmission problems are encountered, audio tapes of either live or test data being transmitted are made with the customer's permission. Whenever an error occurs, the computer operator notes its location on the recording tape by jotting down the number on the tape recorder's footage register.

IBM engineers translate the sounds into graphs. Visual scanning of the graphs enables specialists to spot and define the problem.

Family Finance Plans National Data Network

WILMINGTON, Del. – Family Finance Corp., through its management subsidiary, will develop a nationwide customer and management information system to provide business information to its corporate staff and to the more than 500 consumer-finance offices and retail furniture stores of its subsidiaries in 28 states.

A large-scale computer located in the headquarters offices will be linked to terminals in each of the field locations. Key corporate executives also will have CRT terminals in their offices to provide immediate access to management information now available only at the end of accounting periods. Completion of the system is scheduled for late 1971.

Models Used

Family Finance intends to construct mathematical models of its consumer credit and retail furniture businesses to simulate variable operating and business conditions. The computer-produced results of these simulations will assist in making management decisions.

"We intend to free our people from much paperwork detail," said Family Finance President Joseph H. Louis, "allowing them to devote more of their time to the development of business, the improvement of service to the customer, and particularly to rendering the family financial counseling so necessary in the consumer credit field."

Faster Service

The system also will speed the processing of credit applications at both the furniture stores and consumer finance offices, and will enable customers to re-establish credit in a new location," Louis said. "But with the new system, each office and store will have immediate access to all the customers' records held in the computer."

Subsidiaries of Family Finance have 484 offices in 293 cities and towns in 28 states, and 41 retail furniture stores in 29 cities and towns in Georgia, North Carolina, and South Carolina.

Electronics Production Line Now Computer Controlled

NEW YORK – What is believed to be the first computer-controlled production system in the consumer electronics industry has been placed in operation by RCA.

The new system is being used initially to direct the design, material control, assembly, and testing of advanced tuners for stereo phonographs in a fraction of the time previously required, RCA said. Eventually it will be expanded to other consumer products, including television receivers.

"The computer-controlled system marks a dramatic step forward in manufacturing precision and quality control," said B.S. Durant, vice-president of the RCA Consumer Electronics Division. "Ultimately, it will revolutionize the production and distribution of consumer products by telescoping the time required from raw materials to final delivery of finished products."

Proved Economy

Built around an RCA Spectra 70/45 computer, the computer-controlled operating system (C/Cos) already has produced significant gains in tuner performance, reliability, and economy, he added.

Durant said the computer plays a key role in both the design of the tuners, by predicting circuit performances and simulating a wide variety of overall performance characteristics before production; and in the manufacturing stage, by testing incoming materials and circuit connections, and by measuring subassemblies as well as the completed tuner's performance.

The C/Cos-checked stereo tuners are subjected to seven times the number of assembly-line tests that are possible with conventional manufacturing methods, Durant said, noting that checks which previously took minutes now are performed in fractions of a second.

Models in Core

The core memory of the Spectra 70/45, located at RCA's plant in Wayne Township, near Indianapolis, Ind., contains a mathematical model of each tuner, which can be instantly recalled for design or test purposes.

Once RCA engineers, using the computer, have completed design of a tuner, the computer samples incoming materials, putting an electronic finger on defective parts with a proficiency never before achieved, RCA said. These parts include advance ceramic substrate modules, a Tom Thumb-size capsule that houses a tiny circuit board bearing a variety of solid-state devices, and a roadmap of circuitry connections.

Use of these capsules has a marked effect on the number of components needed to assemble a stereo phonograph tuner. Pre-C/Cos tuners had as many as 294 such components, while the average computer-produced tuner has only 70.

Once the optimum circuitry layout has been computer-determined by the Spectra 70/45, the ceramic substrate modules are electronically measured to assure that the units and other electronic parts meet all necessary standards.

On-Line Tests

Strategically placed in the production flow pattern are 10 test stations. They consist of cabinets housing the necessary electronic equipment to converse with the main computer. Each of these test stations has a row of control buttons, including one which, in rare cases, lights up to indicate reject. The human operator then receives a printed report from the computer spelling out the cause of rejection and what action should be taken to correct it.

During the assembly of circuit boards for RCA stereo phonograph tuners, 40 checks are made on each board. Thirty checks under computer guidance are made during assembly of the tuner itself, and final acceptance checks are carried out at the end of the process.

Agency Extending Its T/S System To 63 Locations

WASHINGTON, D.C. – The U.S. Department of Agriculture has launched the second phase of a project that gives a computer's problem-solving power to scientists, engineers, and administrators at 32 government agency locations.

Based on the idea of sharing the services of a single computer, the project is opening the doors of data processing to many agencies for the first time.

"The service is one of the first of its kind in the federal government," said William Wise, deputy director of the Statistical Reporting Service's data processing center.

He said the Agriculture Department is currently offering service to users at 15 locations within its own organization and to users at 17 other government agency locations as well.

Within the Agriculture Department, the computer, an IBM 360/40, is handling information related to areas such as meat inspection, consumer-menu planning, management of timber resources, and soil conservation. It is also used by the office of Secretary of Agriculture Clifford M. Hardin to assist in management decisions.

Outside users include the Bureau of Public Roads, the Civil Service Commission, Department of Defense, Public Health Service, Naval Air Systems Command, Naval Observatory, Arms Control and Disarmament Agency, and the State Department.

The recent linking of the 32nd agency location marked the end of the project's initial phase. The second phase, scheduled for completion in six months, will accommodate an additional 31 users.

"Agriculture has been a strong proponent of sound business practice on the nation's farms and ranches for over 100 years," said Wise. "We think it's equally good business to get the most out of a computer."

New Literature

A third-generation, programmable calculator, the Wang Model 700, is described in an eight-page brochure, and a complete line of the company's 300 series calculators is shown in a 16-page booklet from Wang Laboratories, Inc., 836 North St., Tewksbury, Mass. 01876.

A description of electrical and mechanical characteristics and voltage ratings of its new type RW-12AB, 3-inch diameter cathode ray tube, designed for high-resolution flying spot scanning and using electromagnetic focusing and deflection, is provided in a two-page data sheet available from Warnecke Electron Tubes, Inc., Issue 689, 175 W. Oakton St., Des Plaines, Ill. 60018.

A ten-page color brochure describing a multiapplication computer, the MAC 16 is from MAC, Lockheed Electronics Co., Data Products Division, 6201 E. Randolph St., Los Angeles, Calif. 90022.

An eight-page prospectus gives details on a 51-week, on-the-job training program covering the 17 major areas of systems analysis. Systemation, Inc., P.O. Box 730, Colorado Springs, Colo. 80901.

Brochures describing how documents containing sought-after information can be located in minutes through an information retrieval system are available from the Jonker Corp., 26 N. Summit Ave., Gaithersburg, Md. 20760.

ICP Quarterly, a catalog of computer software for purchase or lease, a marketplace for those with programs for sale or lease, and an index of qualified programming services and time-shared computer facilities, is available by writing International Computer Programs, Inc., 2511 E. 46th St., Indianapolis, Ind. 46205.

A four-page bulletin describes Sangamo Electric Co.'s new Transidata T103A series of data sets. Write for Bulletin 5320, Sangamo Electric Co., Communication Systems, P.O. Box 359, Springfield, Ill. 62705.

A brochure describing the automatic documentation system being offered by the Proprietary Systems Division of Computer Time-Sharing Corp. is available from the company at 1018 Palo Alto Office Center, Palo Alto, Calif. 94301.

A two-page bulletin featuring the VM-1400 Voice Response System is available from Technitrend, Inc., 7300 N. Crescent Blvd., Pennsauken, N.J. 08110.

Benefits realized from the application of refined data communications and processing by two corporations in totally different businesses are detailed in two new eight-page brochures. Write Dept. SP-82, Teletype Corp., 555 Touhy Ave., Skokie, Ill. 60076.

A catalog of standard in-stock forms for general business is available from Watts Business Forms, Inc., Mr. Art Shapiro, 225 Broadway, New York, N.Y. 10007.

A reference manual for the new Xtran time-sharing language is available from Com-Share, Inc., 1919 W. Stadium Blvd., Ann Arbor, Mich., 48106.

An eight-page folder describing a newly formed ASW display advisory group is available from Stromberg Datagraphics, Inc., P.O. Box 2449, San Diego, Calif. 92112.

A brochure of six pages describing the proprietary systems division's automatic documentation system, Autodoc, is available from Computer Time-Sharing Corp., Proprietary Systems Division, 1018 Palo Alto Office Center, Palo Alto, Calif. 94301.

PO 388

Sample of graphic 1969 projection.

New Service Specializes In Management Reports

CULVER CITY, Calif. – Mars, a service for producing management reporting, is now being offered by Visual Computing Corp. It has been developed, the company states, in response to a need for a better and more economical graphical-display process for the volume of modern business. With prices starting at around $30 for a ten-page, one-copy report including a microfilm master, the system offers a 24-hour turnaround with the exception of mailing time.

A VCC executive pointed out that normally, skilled personnel and expensive equipment are required to produce good graphical reports. With Mars, these people and this equipment are concentrated in one location, and the cost is shared by many customers.

The software package which is the key to the system, is based on the use of a microfilm recording device which generates the finished copy. With graphics software and several different type faces, the system can produce any desired type or report, according to the company.

Visual Computing is at 10810 Washington Blvd., here.

Cobol Shorthand Is Translate I To Standard Cobol Code by Cope

LINCOLN, Neb. – Shorthand versions of Cobol can be translated into standard Cobol code with Cope (Cobol oriented to programming enhancement), according to its developer, the University of Nebraska.

Cope was developed under OS/360 and operates as a precompiler. Its basic purpose is to permit the programmer to code his program in a highly condensed form, and yet maintain documentation and programming standards.

Free Format Input

Input to Cope is in free-format, 72-character strings. The statement, the major syntactic unit, describes the desired function, its desired operands, and its sequence of execution. Such statements are separated by ‖ and are limited to a maximum length of 160 characters.

The secondary syntactic unit with Cope is the argument. It contains a character-string, terminated by some special character. The permissible characters are =, (), ., @, and $. These arguments contain coded information as to the desired record-references or operands, and can be used 56 characters.

Several abbreviations are used, such as IDS for Identification Division statements, and SCS for Select clauses. All statement forms are abbreviated. For example, the MOVE statement is coded in "m,date-name-1, data-name-2‖ and expands into "MOVE (data-name-1) TO (data-name-2).

As shown in the example, very few source statements can produce a very large amount of coding when passed through the Cope precompiler. The efficiency of the generated code is exactly the same as the logical efficiency of the original source statements.

More information regarding Cope can be obtained from William P. Munger, information systems manager at the University of Nebraska.

Financial Audit System Written in Neat by NCR

PROVIDENCE, R.I. – A Financial Audit and Information Retrieval System (Fairs) for the NCR 315 computer has been designed, according to the company, to provide the financial community with an analysis and auditing package for application areas.

The system currently includes four major applications: demand deposit accounting, savings, installment loans, and club-plan accounting. The package is written in Neat (NCR's proprietary language designed for natural-language programming) and requires a five-tape/10K-memory environment. The company is planning a Cobol version for the near future, according to the developer, Applied Computer Sciences, Inc., based here at the Howard Building.

Fairs was originally designed for the Old Stone Bank and Trust Co., a medium-scale local bank, and is being distributed under an exclusive marketing agreement.

The package sells for $5,000, which includes installation, documentation, and maintenance. Alterations are available from ACS on request, and additional options will be prepared if requested.

Remote-Access Language Designed for Retrieval

FORT WASHINGTON, Pa. – A machine-independent language which will provide simple, rapid access to any type of stored information is now available, according to its developer, Industrial Information, Inc.

Terminal Oriented Service Language (TOSL) was developed, according to company President Gerald Nicklin, to facilitate the company's expansion into remote-access computing for corporate management. The first package released using this new language is a record management system to coordinate file management. The system provides information retrieval, record maintenance, report generation, computer mobility, and communications, according to the company, through the use of a very simple and easy-to-learn language for commands.

Contracts include customer training in TOSL, as well as orientation to the specific packages being used. The basic on-line orientation is aimed at the management-information system market, and will be expanded through later release of such packages as financial management, logistics management, and personnel management, according to Nicklin.

Cosmic Offers File Conversion Program

ATHENS, Ga. – A conversion program for large-scale files and file-management systems is being offered for the cost of duplication by Cosmic, the national clearinghouse for technical information here, at the University of Georgia. The program runs on a Univac 1108 and is written in Fortran V and Assembler Language. The system requires at least one Fastrand II mass-storage device.

This compatible conversion system is designed to centralize the solution of general problems that arise from the use of direct-access mass storage. It is also intended to provide a stable interface for the conversion of production programs. Developed under contract to the Marshall Space Flight Center by Boeing, the program provides total data management using the new Fastrand II devices as the primary storage medium.

Several modes of data retrieval are supported using different types of keys or indexes and pointers. Several utility features are provided by CCS including dynamic storage allocation, retrieval of record information and accounting data, and maintenance of file-accounting information.

The program is available under Reference Number B69-10031 from Cosmic and can be obtained either as microfiche or paper copy.

Trend Analysis Package Developed For Growth and Activity Levels

NEW YORK – A package designed to provide information about trends in growth and levels of activity for analysts has been developed and released by Lever Data Processing Services as part of its Instant Series of commercial software. The time-sharing system is aimed at the financial and large-scale business community.

Applicable to the problems of both long- and short-range planning, the package offers several facilities including profit and loss projections, budget preparation, manpower and resource requirements, and forecast comparison for two different forecasting approaches.

The system is currently available through the Tymshare, Inc. time-sharing service, and will be made available both to customers and to time-sharing centers. The total package runs in the vicinity of $4,500 for a time-sharing center, and the normal rates apply to Tymshare users.

Lever Data Processing is at 390 Park Ave. here.

Job Accounting Program Available

NEW YORK – Diversified Data Services and Sciences has released an accounting package for S/360 OS MVT and MFT. The package provides job and job-step accounting based on the information, provided by the operating system, regarding device allocations and time alloted.

Available for $2,500, the accounting package is aimed at those users who feel they cannot obtain proper estimates and accounting information about the use of their system in a multi-programming environment, according to John Czerkies, company director of research and special projects.

Diversified Data Services is at 105 Madison Ave. here.

Small Cities Will Go EDP In Five Years

ST. LOUIS, Mo. – Nearly every city of 10,000 population will be using a computer within five years, a McDonnell Automation Co. executive predicted recently.

Only 275 of the nation's 1,900 cities of 10,000 or more are currently taking advantage of this space-age tool, according to Robert L. Harmon, vice-president and general manager of McDonnell Automation.

Delivering the keynote address to the 23rd annual convention of the International Institute of Municipal Clerks, Harmon said that most of the cities now using computers have populations of more than 50,000.

Towns to T/S

Harmon predicts that many of the smaller communities will time-share a computer, which means that they will share both the use and the expense of a computer.

There are many potential uses for a computer in city offices, he said, ranging from manpower scheduling to financial planning.

Harmon said that the "generation gap" syndrome has limited the use of computers by cities because many administrators are hesitant to get involved in a specialty which they themselves do not understand.

Harmon stressed that the recent technological advances make it easier and faster for a city manager to ask a computer for information than to search files or the pages of record books.

Aries Chairman Foresees Profits In 1969 Results

WASHINGTON, D.C. – Aries Corp., a Washington-based computer software company, is expected to have gross revenues of $6 million during 1969 and should report a profit for the year, Chris A. Clark II, board chairman and chief executive officer, told shareholders at the annual meeting on May 29.

Aries had reported losses for the past two years on an annual volume of about $4 million each year. Clark said the company showed a profit in April and that the profit position has continued to improve through May.

A 52% interest in Aries recently was acquired by Automation Technology, Inc. of Santa Barbara, Calif. As a result, Aries received $1 million in new capital and a substantial strengthening of its marketing force.

"We expect the profit picture to improve even further through economies effected by the new relationship," Clark said.

50,000 Shares Sold Of Computer Machinery

LOS ANGELES – James K. Sweeney, president of Computer Machinery Corp., has indicated that an investment company purchased 50,000 shares of common stock in Computer Machinery Corp. on May 9.

Digital Equipment Corp.'s 1000th PDP-8/I is given an operational check as it comes off the assembly line in the company's Maynard, Mass., plant. This milestone was reached less than a year and a half after the PDP-8/I was first introduced.

Digital Outlines New Plans For Manufacturing Plants

MAYNARD, Mass. – Four plans for new plants and plant expansion in several areas have been announced by Digital Equipment Corp.

Digital has signed an agreement to lease a 60,000-sq-ft building now under construction in the Leominster Industrial Park, Leominster, Mass., and has signed an agreement to purchase a 240-acre site on Route 202 in Westfield, Mass., where it expects to construct a 150,000-sq-ft plant.

Digital also has taken an option to purchase a 137-acre site near Route 2 and Harvard Street in Leominster for a 250,000-sq-ft plant. Purchase of the site is contingent on approval of a petition to rezone the land for industrial use.

Digital intends to occupy a 58,000-sq-ft plant now being built in San German, Puerto Rico. The building, scheduled for completion in January, will replace three small buildings which DEC now occupies there.

"Our new facility plans are part of a continuing, manufacturing-expansion program designed to keep pace with the growth of the company," Digital Vice-President Stan Olsen said after announcing the expansions.

"Ever since Digital started business in Maynard in 1957 with 8,500 sq ft, we've been increasing our manufacturing facilities. Last year we doubled our space in Maynard and our main plant here now consists of over 900,000 sq ft.

"Within the last several years we've added plants in Canada, England, and Puerto Rico," Olsen added. "Production facilities at Carleton Place in Ontario were increased two months ago with the addition of 25,000 sq ft. And our Puerto Rico plant, which started nine months ago, now has over 200 employees and is still growing.

"Maynard will still remain the center of all our manufacturing activities," Olsen said, pointing out that other plant sites would "support and supplement the Maynard plant."

Staffing of the building in Leominster will start when the building is completed in October. Digital expects that approximately 100 people will be employed at that location by June, 1970. It will be used as a pilot plant for the assembly and testing of computers and peripheral equipment.

Construction of the Westfield plant will begin after consummation of the purchase agreement and installation of access roads and utility lines. It is expected that after the plant opens it will employ 130 people.

Digital will support a petition on behalf of the owners of the 137-acre site in Leominster to rezone for industrial use. After the land is rezoned and the City of Leominster has agreed to bring the necessary roads and utilities to the land, the company plans to purchase the tract and proceed with the construction of a 250,000-sq-ft manufacturing facility.

CLC Gets $100 Million In Credit from 25 Banks

WASHINGTON, D.C. – Computer Leasing Co. has entered into a new $100 million credit agreement with First National City Bank of New York, an agent for a group of 25 participating banks.

The credit line will be used to purchase additional computer equipment for lease to CLC customers, and to refinance current indebtedness remaining from earlier credit agreements.

C&S Discloses Record First Half Earnings

LOS ANGELES – Computing and Software, Inc. attained record earnings for the first half of its current fiscal year, Norman E. Friedmann, president of the software corporation, disclosed last week to security analysts.

"Our earnings per share for the first six months ending April 30 reached a record 48 cents, which represents a 37% increase over the 35 cents per share for the same period a year ago after pooling, or a 45% increase over 33 cents per share when excluding our discontinued consumer electronics servicing business," reported Friedmann at a luncheon hosted by the Los Angeles Society of Financial Analysts.

"In addition, our net income, $1,485,000 on sales of $26,166,000, for the same period, represents an all-time high compared with $1,013,000 on sales of $21,195,000 achieved a year earlier, excluding discontinued operations," he said.

In his address to the Los Angeles analysts, Friedmann stated that Computing and Software plans to couple many of its computing capabilities over the next several years, and to offer a growing family of on-line, time-shared information services derived from the company's expanding data bases.

"We anticipate a major expansion of our information services to use computer-based techniques to attack key marketing problems for industry and business leaders throughout the country," indicated Friedmann. "In addition, we plan to establish additional commercial computing centers in an expanding number of metropolitan cities throughout the United States.

He noted that Computing and Software also intends to enlarge its computerized financial services and broaden its role in the computer peripheral market. "We believe our planned strategy is highly compatible with the rapidly emerging software industry."

"Our continued growth reflects a healthy balance between internal expansion and highly selective product line acquisitions," Friedmann explained. "We have reduced our dependence upon government contracts from 82% in 1965 to 32% in 1968. Our operating profit margin has also nearly doubled during this period."

"Today, our only restriction is the limit of our imagination in the application of computers. Our ability to supply products and services is currently considerably less than the demand."

During his address, the 40-year-old president forecast that the software industry will continue to develop at a relatively rapid rate, perhaps at a minimum of 25% per year, deep into the next decade. He also indicated that the software sector has surpassed the comparable hardware market in size and growth, and this trend will hold.

Price competition will slowly grow, Dr. Friedmann explained, and will bring margin pressure on companies not involved in providing relatively unique products and services. A relatively small number of noted software companies probably will emerge and effectively dominate the field.

"Emphasis is rapidly shifting away from technological progress for its own sake, to a blend between technological competence and professionalism in the employment of sound marketing techniques," he said. "As we proceed in virtually every maturing industry, marketing and management ability will become the key factors of successful companies in this diversified field."

UCC Expands European DP Through ACI Acquisition

NEW YORK – University Computing Co. has announced a substantial expansion of its European computer-services business with the acquisition of Automation Centers International, Zurich, Switzerland.

ACI, a privately held company, was purchased by UCC for $5 million of notes due June 1, 1976. The notes are convertible into 110,535 shares of UCC common stock, and may be converted after May 31, 1972, and until Oct. 1, 1972.

ACI will be operated under its current name and managed as a wholly owned subsidiary of UCC International, Inc., whose existing European computer-service operations include UCC (Great Britain) Ltd. of England, University Computing Co. (Nederland) N.V., and Computer Bureau Shannon Ltd., an Irish firm.

ACI, headquartered in Zurich, Switzerland, operates computer service centers in Brussels, Hamburg, Dusseldorf, Frankfurt, Stuttgart, Munich, Vienne, Milan, and Zurich. The company provides programming, systems analysis, and computer operations for industrial firms in Western Europe.

More than 90% of ACI's sales involve proprietary systems and programs, according to UCC.

According to Chairman Sam Wyly, the acquisition will give UCC a major data processing and business-information capability throughout Western Europe, second only to IBM's.

The acquisition of ACI, combined with the existing UCC international operations, will immediately establish UCC computing power within a 100-mile radius of the entire industrial heart of Western Europe," he said.

He also noted, "The combined UCC international operations will employ 900 people, of whom more than 150 are professional programmers and systems analysts. Only four are Americans."

Leasing Stocks Reflect Money Problem, Computer Stocks Continue General Sag

By A.B. Williams
CW Staff Writer

The sag goes on. All sectors went down, with Leasing showing the way with a 4.5% decline. Again the gain-loss ratio was 1-to-3, with 24 issues rising and 74 going down.

Software was the least-hit group, with a 6-point (8.3%) jump in UCC and a 10.3% rise in Digitek providing s very welcome cushion to a group that suffered a 4-to-1 loss-to-gain ratio.

The Systems group saw 12 losses snd only two gains, but the much-higher sverage price-per-share limited the sector index loss to 2.7%.

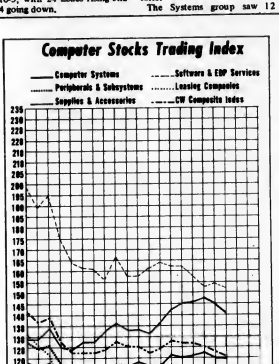
Leasing Woes

Leasing stocks are in a four-way bind. First, money rates are st all-time highs. Leasing is founded on the theory of getting more return than the smount paid for outside money used. When interest costs go up, the percentage return on cost goes down.

The second part of the bind is the possible demise of the investment tax credit. While perhaps less important dollar-wise, than the cost of new money, it is a definite factor in declining stock prices.

The third factor is the threat of unbundling. Hardware prices charged by IBM may go down for both purchase and lease customers. While the total cost of the IBM package is expected to go up, very few lessors are in a position to compete across the board, or anywhere close to it.

All these have contributed to stock price problems, and thus have contributed to the fourth problem. The classic method of avoiding or of liquidating high-cost debt has been the sale of common stock. The ideal time to do this is, obviously, in times of rising earnings. Even though leasing companies are still on the way up, any or sll of the above can materially affect earnings.



BASE FOR EACH TRADING INDEX: 100 as of 3/1/68

COMPUTER STOCKS: TRADING SUMMARY

COMPUTER SYSTEMS

EXCH	1969 RANGE	CLOSING PRICE		WEEK NET CHANGE	WEEK % CHANGE	%CHANGE FROM BASE
N	135-109	124 1/8	BURROUGHS CORP	+	1/4	-.20	-32.53
O	48 -42	45	CALL(3) 9600	+	1 3/4	-3.26	-23.75
N	159-123	144 3/4	CONTROL DATA CORP	+	1 7/8	-1.74	-44.58
N	191-149	191	DIGITAL EQUIPMENT	=		-3.83	-18.41
N	23- 18	19 1/8	ELECTRONIC ASSOC.	+	1 3/8	-6.59	-34.84
N	98- 85	89 1/2	FOXBORO CO.	+	3/4	-1.65	-7.87
N	95- 75	88 1/8	HEWLETT-PACKARD CO	+	2 7/8	-3.15	-47.48
N	148-107	134 1/4	HONEYWELL INC	+	1	-1.75	-6.19
N	334-291	315	IBM	+	5	-1.31	-20.24
N	139-108	112	NCR	+	3	-2.61	-21.67
A	48- 41	43 3/4	SCI	+	3/8	-1.69	-3.87
N	40- 34	36 5/8	NATHESON CO	+	3/4	1.98	-1.28
N	29- 24	25	SCI. CONTROL CORP.	+	1 1/2	-4.76	-25.23
N	59- 44	58	SPERRY RAND	+	2 1/8	-4.05	11.11
A	34- 26	34	SYSTEMS END. LABS	+	1 1/4	-3.53	51.11

PERIPHERALS & SUBSYSTEMS

EXCH	1969 RANGE	CLOSING PRICE		WEEK NET CHANGE	WEEK % CHANGE	%CHANGE FROM BASE
N	89- 45	78 3/4	ADDRESSOGRAPH-MULT	+	3/4	-1.26	34.85
O	71- 54	51 3/4	ALPHANUMERIC	+	6 3/4	-7.60	51.19
O	44- 30	40	AMPEX CORP	+	1/8	-.30	44.83
O	19- 14	14 3/4	ROLT-BERANEK & NEW	+	1/4	-1.67	-14.49
O	17- 12	16 3/4	BUNKER-RAMO	+	1/4	-1.47	-1.52
A	39- 23	31 5/8	CALCOMP	+	1/4	-.78	11.50
O	24- 23	23	COGNITRONICS	=	1/4	-1.08	15.00
O	14- 11	13 3/8	COMPUTER EQUIPMENT	+	1/8	-.92	11.66
O	27- 14	14 1/2	DATA PRODUCTS CORP	+	7/8	-3.13	5.74
O	22- 14	14 3/4	DICO	+	3/4	-4.84	-12.38
N	23- 16	16 1/2	ELECTRON RESOURCES	+	1 1/2	-4.55	14.79
O	19- 14	18 1/4	FABRITEK	+	1/2	-4.65	5.04
O	39- 27	27 1/4	FARRINGTON MFG	+	1 1/4	-4.39	32.12
O	21- 14	15 1/8	INFORMATION DES	+	2 1/8	-13.89	24.84
A	24- 20	20	MILGO ELECTRONICS	+	3 3/4	13.46	45.93
N	80- 71	71 1/8	RAMAD DATA TECH.	+	1 3/8	-1.89	-7.32
O	18- 14	35	OPTICAL SCANNING	=		-5.17	-9.37
O	29- 21	23 1/4	PERIPHONICS	+	1/4	-1.06	29.17
A	39- 27	31 1/2	POTTER INSTRUMENT	+	1	-3.08	29.93
O	20- 14	15 1/2	SCIENTIFIC DATA SYST	+	2 1/2	-3.57	58.31
N	39- 24	25 1/2	VISUAL ELECTRONICS	+	1/8	-2.38	30.81
N	61- 34	36 1/8	ZENDERS ASSOCIATES	-	1	-9.49	-21.48
O	45- 30	30	SCAN-DATA	-	0	-7.69	17.40
O	36- 27	33 1/2	TALLY CORP.	+	1/2	-2.88	-41.43
N	870-241	249 3/4	XEROX CORP	+	4 5/8	-1.58	11.48

SUPPLIES & ACCESSORIES

EXCH	1969 RANGE	CLOSING PRICE		WEEK NET CHANGE	WEEK % CHANGE	%CHANGE FROM BASE
O	41- 39	39 1/2	ACME VISIBLE	+	1/2	1.28	-18.56
N	20- 16	16 3/4	ADAMS-MILLIS CORP	+	1 1/2	-8.22	-18.09
O	21- 13	16 1/2	BALTIMORE BUS FORM	+	1/4	-1.49	14.38
A	29- 18	21 7/8	HARRY URLICHT	+	1/8	-.57	-18.18
O	24- 24	24	DATA DOCUMENTS	=		-.99	-14.98
N	40- 37	38 3/4	ENNIS BUS. FORMS	+	1/2	-1.27	32.00
N	64- 43	45	IBM	+	3 3/8	-3.99	40.46
N	112- 94	103	3M COMPANY	+	2 1/8	-1.90	29.94
O	16- 14	14 1/2	MOORE BUS FORMS	-	3/4	-9.14	24.15
A	49- 34	43	MOSINEE CORP	+	1 1/2	-3.37	40.79
N	48- 34	37	REYNOLDS & REYNOLD	+	1 1/2	-3.90	18.48
O	51- 33	39 1/4	STANDARD REGISTER	+	1 1/2	-3.68	41.46
N	36- 26	33 3/4	UARCO	+	1 1/4	3.85	-10.48
A	28- 16	16	WABASH MAGNETICS	+	1/2	-3.03	15.04
O	34- 29	32 3/4	WALLACE BUS FORMS	+	1/2	1.55	67.16

SOFTWARE & EDP SERVICES

EXCH	1969 RANGE	CLOSING PRICE		WEEK NET CHANGE	WEEK % CHANGE	%CHANGE FROM BASE
O	14- 7	14 3/4	ADVANCED COMA TECH	+	1	-11.45	3-33
O	1- 1	1	AMPLIFI DATA REC	+	1/2	1.87	33.85
O	19- 7	9 1/2	AMTEC	+	1/4	-2.56	-38.71
A	83- 63	79 3/8	AUTOMATIC DATA PRC	+	2 1/4	-2.75	69.41
O	12- 8	8 1/4	AUTO SCIENCE	+	1/4	-2.94	106.25
N	31- 18	19 1/2	BRANDON APPL SYS	+	3/4	4.00	171.74
A	71- 14	35 1/4	COMPUTER	+	1/2	-3.83	-34.43
O	16- 9	9	COMPUTER PROGRAMM	-	1/2	-5.26	39.19
O	10- 10	10	COMPUTER METHODS	=		-4.47	-.33
N	73- 45	64 1/2	COMPUTER SCIENCES	+	1 1/2	-2.27	342.85
O	12- 6	6	COMPUTER TECHNIQUE	-	1	-14.13	-33.33
O	56- 32	52 1/4	COMPUTING & SOFT	+	3 1/4	-5.39	164.96
O	54- 32	42	DATAMATION SERVICE	-	2	-14.89	+6.84
O	21- 10	10	DATATEC	+	1 1/2	-13.04	-31.49
O	13- 7	8	DIGITEK	+	3/4	10.34	-34.48
A	58- 38	54 1/8	ELECT COMP PROG	+	4 5/8	20.	-10.19
O	34- 28	28	INFOMATICS	-	1	-3.45	61.15
O	19- 5	5	INFORMATION CONTR.				-76.61
O	22- 9	9 1/8	MAT COMP ANALYSTS	+	1/2	-5.80	103.41
A	32- 23	26 1/4	PLANNING RESEARCH	+	1/4	-.94	-18.64
O A	11- 7	9 1/2	PROGRAMMING & SYST	+	1/2	-4.76	-14.62A
O	10- 8	9	SOFTWARE SYSTEMS				-8.33
O A	37- 12	13 1/2	ANALYTIC SYS	+	1/8	-3.83	-51.65A
O	31- 10	29	TRI COMP CENT INC.	-	1	-3.33	41.46
O	14- 12	12	UNITED DATA CENTER				-3.68A
O	144- 48	96	UNIVERSITY COMP	+	A	8.33	85.81
A	85- 29	29 3/4	CSS SYSTEMS		1/4	-1.83	36.75A
O A	16- 12	12	W-S- TIME-SHARING	-	1/2	-4.00	-29.89A

LEASING COMPANIES

EXCH	1969 RANGE	CLOSING PRICE		WEEK NET CHANGE	WEEK % CHANGE	%CHANTE FROM BASE
O	43- 34	35	BOOTHE COMPUTER	+	3/4	-2.19	-4.44
O	9- 7	10	COMPUTER EXCHANGE				900.00
A	34- 14	15 1/4	COMPUTER LEASING	+		-.16	-55.24
A	14- 8	13 1/4	COMPUTRON				-10.40A
O	26- 11	12 1/4	DATA-TRONICS	+	1/8	-1.01	-51.02
A	68- 31	34 1/2	DATA PROC. & E	+	3 1/2	-8.35	-11.15
O	37- 17	17 1/2	DELUXE RENTAL	+	1 1/2	-8.64	-47.46
A	59- 38	48 1/2	DEARBORN COMPUTER	+	1	-2.41	109.58
O	16- 10	11 1/2	DIGITAL INC.	+	1/4	-2.63	-16.36
A	45- 24	26 1/2	GRANITE EQUIPMENT	+	1/2	-5.79	-3.56
O	19- 11	11	KEYBOARD COMPUTER	+	1/2	-4.34	-15.38
N	54- 33	34	LEASED DATA PROC.	+	2 3/4	-7.51	55.88
O	9- 6	6 1/4	LEYCO COMPUTER EQU	+	1/4	-3.84	-16.66
A	37- 34	35 1/8	LEVIN TOWNSEND	+	1/8	-.35	-14.03
O	11- 7	7	NATL. DATA CORP.		1/4	-4.35	-44.18
O	7- 4	4	NATIONAL ASSET	+	1/4	-5.88	-20.00
A	19- 08	35 1/8	NATIONAL EQUIPMENT	+	3/8	1.81	-15.48
O A	18- 6	7	NCC LEASING	+	1/4	-3.45	-88.46A
A	43- 25	26 1/4	RANDOLPH COMPUTER	+	5/8	-2.33	-38.97
O	34- 12	15	SYSTEM CAPITAL			-6.25	-88.46
A	28- 10	09 3/8	U.S. LEASING	+	1/8	3.16	67.34

Contracts

Ampex Corp., Redwood City, Calif., has received a $400,000 contract to design and install a random-access video system as the third part of a scheduled three-phase computer-controlled instructional resource center at Oak Park and River Forest High School, Oak Park, Ill.

Ampex Corp., Culver City, Calif., has been contracted by IRA Systems, Inc. of Waltham, Mass., for the amount of $100,000 to supply Model TMZ digital tape memories. The TMZ will be standard equipment with the Spiras-65 Stored Program Controller recently introduced by IRA Systems.

Burroughs Defense, Space and Special Systems Group, Paoli, Pa., has been awarded a $768,500 contract from the U.S. Post Office Department Bureau of Research and Engineering for development of an automatic carrier sequencer capable of automatically feeding, reading, and sequencing letter-size mail in carrier delivery order.

Planning Research Corp. of Los Angeles has been awarded a $212,000 contract to design a substantive information-handling system for the U.S. Department of State. The system will provide for indexing of information from documents and telegraphic messages, selective dissemination of information, and document storage and retrieval.

New Registrations

COMMERCIAL CAPITAL SYSTEMS, INC., Covington, La. 70433, a company engaged in the computer services business, the development of a shopping center, and the operation of a small business investment company, filed to register 10,000 shares of capital stock. The stock is proposed for exchange of outstanding common shares of Commercial Bank and Trust Co., at the rate of five company shares for each share of the bank's stock. No underwriter is involved.

SEGGOS INDUSTRIES, INC., 174 Richmond Hill Ave., Stamford, Conn., a company engaged in the design, development, production, and sale of a magnetic tape head, a small proprietary form of transducer used as a component in conjunction with magnetic tape, principally in analog or digital recording, data storage, and data retrieval equipment, filed to register $4,000,000 of convertible subordinated debentures, due 1979.

Proceeds intended to create a production capacity for the manufacture of products, and to apply toward the engineering, research, and development of several products. The underwriter is Monarch Funding Corp., 79 Wall St., New York, N.Y.

OCEANBORN COMPUTER & MARINE CORP., 100 W. Monroe St., Chicago, Ill. 60603. The company purchases and leases electronic data processing equipment, and owns and operates mobile offshore drilling platforms and rigs. It also maintains a fleet of marine vessels which serves as support and crew boats, and conducts seismic geophysical studies for offshore drilling and related industries. The filing is for registration of 350,454 shares of common stock, at a maximum of $50 per share.

Proceeds are intended to repay senior secured indebtedness of the company, which was incurred to finance the purchase of computer equipment. The underwriters are Loewenbaum, Thalmann & Co., 25 Broad St., New York, N.Y., and Oppenheimer & Co., 5 Hanover Square, New York, N.Y.

INTERSTATE COMPUTER SERVICES, INC., 754 Fourth Ave., Brooklyn, N.Y. 11232, a company engaged in data conversion and processing services using optical scanning and computing equipment, filed to register 100,000 shares of common stock.

Proceeds, at $4 per share, intended for the purchase and installation of a Control Data 3200 computer, and for general corporate purposes. The underwriter is Alessandrini & Co., Inc., 11 Broadway, New York, N.Y.

COMPUTER LEARNING AND SYSTEMS CORP., 12303 Twinbrook Parkway, Rockville, Md. 20852, a company engaged in operating schools for instruction in computer programming, operation, and maintenance, and in selling consulting and programming services, filed to register 340,000 shares of capital stock.

Proceeds, at $8 per share maximum, intended for the purchase of Management Research Associates, for the expansion of the operations of MRA, for the establishment of new computer learning centers, for development of a home-study program and a sales-licensing program thereunder, for the further development and expansion of its software package, for the expansion of current time-sharing software development services, and for possible technical development and marketing of a commercial remote access computer service program. The underwriter is First Investment Planning Co., 1900 Massachusetts Ave., N.W., Washington, D.C.

Earnings Reports

MANAGEMENT ASSISTANCE, INC.

3 Months Ended March 31

	1969	1968
Revenue	$18,824,732	$18,163,480
Earnings	(194,928)	($18,678,453)
(loss)		
Shr Ernd	(.04)	($4.62)
(loss)		

a—After extraordinary charges of $17,000,000. b—After extraordinary charges of $4.21.

6 Months Ended March 31

Revenue	$36,382,790	$32,466,763
Earnings	($11,823)	($19,021,929)
(loss)		
Shr Ernd	(.12)	($4.71)
(loss)		

a—After extraordinary charges of $17,000,000. b—After extraordinary charges of $4.21.

DATA PACKAGING CORP.

	1969	1968
Revenue	$3,041,042	$1,702,420
Earnings	211,809	125,613
Shr Ernd	.28	.18

TECHNICAL TAPE INC.

Year Ended Dec. 28

	1968	1967
Sales	$24,243,053	
Loss Cont Op	1,775,000	
Loss Disc Op	2,530,000	
Loss	4,305,000	
aSpec Chg	2,030,000	
Net Loss	6,338,000	

a — Extraordinary loss on the sale of discontinued operations of plant facilities.

3 Months Ended March 26

	1969	1968
Revenue	$7,028,000	$6,259,074
Earnings	117,000	($98,184)
(loss)		
Shr Ernd	.05	

POTTER INSTRUMENTS CO.

3 Months Ended March 31

	1969	a1968
Revenue	$8,273,500	$5,311,600
Earnings	406,800	352,600
Shr Ernd	.17	.15

b9 Months Ended March 31

Revenue	$21,118,200	$14,013,400
Earnings	1,182,700	945,200
Shr Ernd	.48	.40

a—Restated by company. b—Based on income before special credit of $750,800 (79 cents per share) in 1969.

BRESNAHAN COMPUTER LEASING CORP.

4 Months Ended Jan. 31

	1969	1968
Revenue	$744,383	$209,964
Earnings	112,163	12,966
Shr Ernd	.08	a.01

a—For nine months ending Sept. 30, 1968.

Acquisitions

RJ Communication Products, Inc. of Phoenix, Ariz., has merged its wholly owned subsidiary, **Delta-Corders** into the parent company. Delta-Corders manufactures a line of digital incremental magnetic-tape recorders which is now incorporated into RJ's digital-systems product line.

Randolph Data Services, Inc. has acquired the business and assets of **National Data Processing Corp.**, Cincinnati, Ohio, in exchange for approximately 19,000 shares of common stock of Randolph Computer Corp. An additional 19,000 shares of Randolph common stock will be issued in the future if certain performance levels are reached by the acquired company.

Trilog Associates, Inc., a Philadelphia company specializing in systems, programming, software, education, and research, has purchased from Information Interscience Inc. its interest in **Tridak Services, Inc.**, a computer company servicing the Delaware Valley. Tridak thus becomes a wholly owned subsidiary of Trilog.

Discussions are under way regarding the acquisition of **Intrex, Inc.**, which specializes in precision numerically controlled machining for the peripheral equipment industry, by **Data Products Corp.**, which provides systems products and services to the EDP equipment user and system builder. Both firms are headquartered in Los Angeles.

Computer and Data Components Corp. of Arlington, Texas, has acquired **Business Exchange, Inc.** a Los Angeles association of over 2,000 business and professional firms that exchange products and services using a computerized credit card program rather than cash. The acquisition was made for 100,000 shares of a new series of convertible preferred stock.

Papert, Koenig, Lois, Inc., a New York-based advertising agency, has agreed to acquire **ACS Industries**, a California electronics company. Papert, Koenig, Lois will exchange 15,000 of its shares for all the stock of ACS Industries. The agreement also provides for the issuance of up to 325,000 additional Papert, Koenig, Lois shares to former ACS shareholders according to a formula based on the electronics company's net income in the third year after the acquisition.

Potter-Englewood Corp. of Chicago has completed the acquisition of all outstanding stock in **Videocraft Manufacturing Co.** and its Mexican subsidiary, **Videocraft Mexicana**, for an undisclosed sum. Chicago-based Videocraft manufactures deflection and convergence components for the television industry, and Potter-Englewood manufactures electronic components and other products for varied applications.

Diversified Data Services and Sciences, Inc. of New York has agreed in principle to purchase a controlling interest in **Comspace Corp.**, a Brooklyn manufacturer of educational training equipment, and electronic and communications equipment. Approximately 60% interest in Comspace would be obtained for cash, with additional stock payments contingent upon future Comspace earnings. Comspace, which includes Munston Electronics and Arkay International as divisions, manufactures and distributes the Arkay educational electronic kits.

Terminations

Management Data Corp. and **Suplee, Mosley, Close & Kerner, Inc.** have mutually agreed to terminate their discussions concerning the proposed MDC acquisition of Suplee, Mosley, Close & Kerner, Inc.

Mohawk Data Sciences Corp. and **Photon Inc.** of Wilmington, Mass., have terminated merger negotiations under way since April 8. No reason was given for the termination.

Rutherford Laboratories, Inc. of Lodi, N.J., a software company, has acquired **Telcon Associates, Inc.** of Hoboken, N.J. The transaction involved the exchange of an undisclosed number of shares of Rutherford's common stock for all of the issued and outstanding common stock of Chemtec Services, Inc., a holding company whose principal asset is its wholly owned subsidiary, Telcon Associates, Inc.

DHR Systems, Inc., a new subsidiary of **Drexel Harriman Ripley, Inc.**, has acquired **Klose, Cort & Co.**, developers of computerized services for use by financial institutions and brokers to assist them in portfolio management and stock selection.

8,000 Burroughs' TC500s Will Be Flown to England

DETROIT – Airline jet freighters are carrying Michigan-made Burroughs computers to England at the rate of a hundred a week.

Regular flights from Detroit Metropolitan Airport carry TC500s to Great Britain, and every Friday a chartered DC-8F flies a cargo of the electronic equipment from Toronto International Airport to Glasgow International Airport in Scotland, according to Burroughs.

Both airports are used to keep pace with orders from several British banks for more than 8,000 of the new Burroughs computers, valued at $67 million.

The routine has been going on for the past few months. It will continue until Burroughs TC500 computers are installed in bank branches of Barclays, Midland, National Westminster, Yorkshire, Belfast, South Eastern, Surrey, Portsmouth, Thames Valley, Oxford, and other banks in England.

To date, more than a thousand of the terminal computers manufactured at the Plymouth, Michigan, plant of Burroughs have been shipped to the British banks.

Barclays, Midland, and National Westminster banks will have TC500 computers in every one of their branches throughout England.

Orders and Installations

An ICL 1904F computer has been ordered by Her Majesty's Stationery Office for the Department of Employment and Productivity. The department is considering the possibility of conducting a limited experiment of matching applicants with employment vacancies by means of remote terminals sited in a selected number of employment exchanges on-line to Runcorn, Cheshire, England.

Rigshospitalet, a Danish government hospital in Copenhagen, Denmark, has purchased a CDC 3300 computer system and a library of medical programs to be used for several applications, beginning with registration and admission of patients, and ultimately evolving into a complete medical information system. Plans call for the system eventually to include all information processing, laboratory data, and physiological monitoring.

Blue Cross of Southern California will lease a Computer Machinery Corp. keyprocessing system, representing a move into a third generation of equipment for the preparation of computer input data at Blue Cross.

An SYS Associates, Inc. SYS-2113 data acquisition and control system has been delivered to the Canadian government for use in military research projects by the Canadian Defence Research Board. The SYS-2113 System monitors and controls up to 46 external unit devices with simultaneous, background job processing through an interrupt-handling and supervisory software package. Data can be sampled and stored for later reduction while the computer processes other tasks.

L.K.A.B., the Swedish iron-ore mining company, has ordered an ICL 1902A computer for installation at Kiruna, a town above the Arctic Circle. The computer, which has a 32K core store, magnetic tape and disk storage, paper tape and punched card input, a line printer, and an arithmetic unit for technical calculations, is to be used for administrative work, technical and research work, and in production planning.

International Communications Corp., a subsidiary of Milgo Electronic Corp., has received an order of 12 units of its Mode 5500/96 high-speed data sets from Information Systems Design of Oakland, Calif. With the ICC data sets, ISD expects to transmit data, on-line, to a large-scale digital computer at the rate of 9600 bits/sec.

Applied Dynamics, Inc. has received an order from the Boeing Co. of Seattle, Wash., for an Applied Dynamics/Four general-purpose analog/hybrid computer system. The complete system will include four separate analog/hybrid computer consoles, as well as interface subsystems for integrating the analog/hybrid computers with Boeing's IBM 360/75J digital computer. It is designed for Boeing's special application of hybrid multivariable function generation, and will be used primarily for aerospace research and development programs.

The Union National Bank of Lowell, Mass., will expand its data processing capabilities with the addition of a Burroughs B500 electronic computer system for processing of general ledger, trust, and commercial loans. The system will also be the basis for the bank's proposed customer account services.

welcome to dpma members

from esp members

Bienvenue à Montréel from ell the offices comprising the ESP international network. During your stey, we et Electronic Systems Personnel, specializing exclusively in the placement of ell dete processing personnel, cordielly invite you to visit us et our offices right here in Montreel. We are convaniently loceted just ecross the street from the convantion eree at Place du Cenade. Come to Suite 1155.

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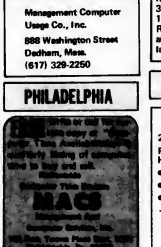

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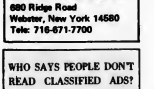

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